

GET INTO RC NOW!
3 GREAT RIDES»NITRO & ELECTRIC p. 166

**BIGGEST
ISSUE EVER! 356
pages**

RADIO CONTROL **Car action**

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

HOT GEAR 1000

NEW CARS,
TRUCKS,
ENGINES,

RADIOS & MORE!

JAM ON IT!
OFNA Jammin'
X1 RTR

BIG TIME
We drive XTM's
huge XLB

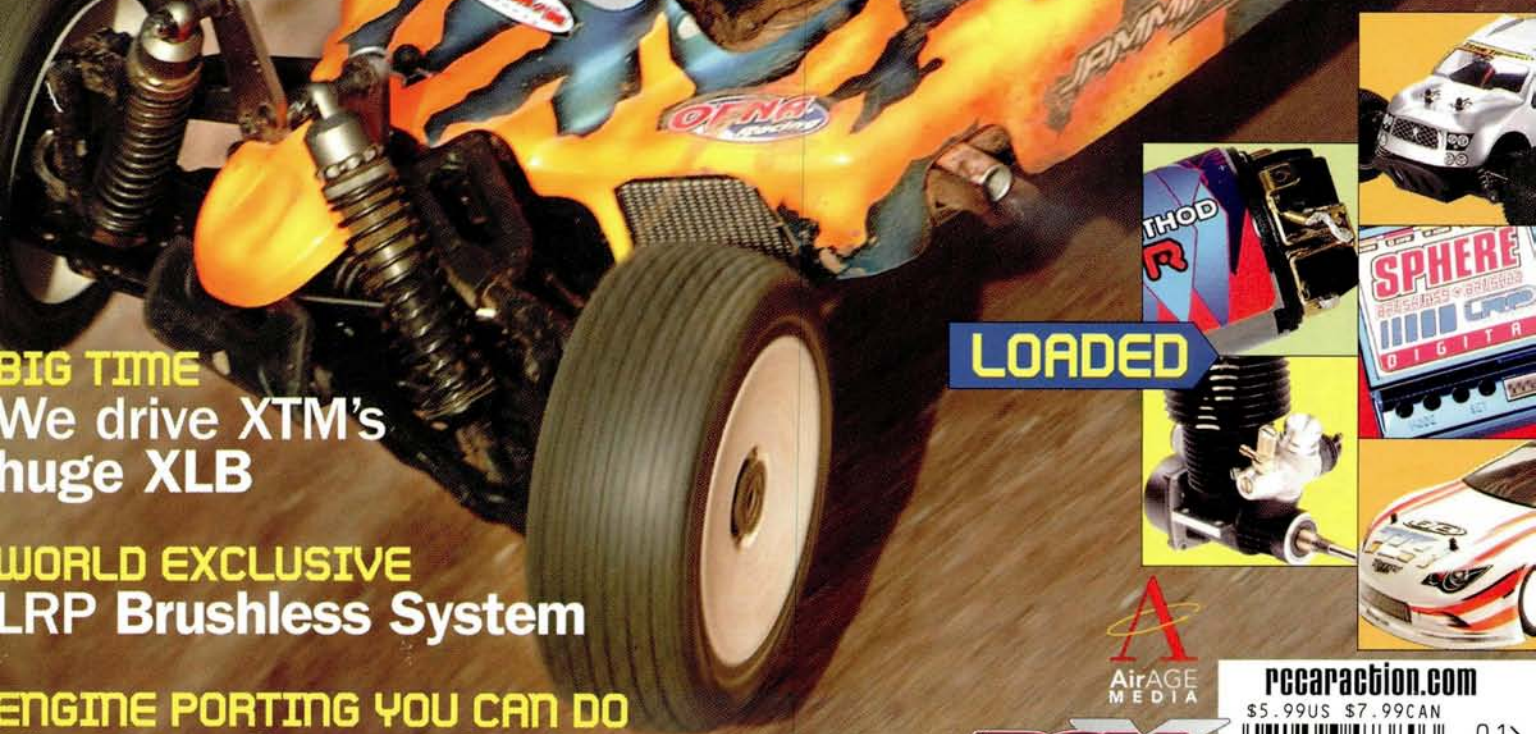
WORLD EXCLUSIVE
LRP Brushless System

ENGINE PORTING YOU CAN DO
Mod your Savage 25 for super power

LOADED

AirAGE
MEDIA

RCX
RCX.COM



pccaraction.com

\$5.99US \$7.99CAN



01>

> GS RACING STORM RTR PLUS > KYOSHO INFERNO MP 777 SPECIAL 1
> SCHUMACHER R12 TEAM > KYOSHO #12 FERRARI > MTRONIKS CTABUS

FEATURES

62 HOT NEW NOW 2005

So much stuff, so little time. Feast your eyes on everything new in RC for the year ahead.

» BY THE RC CAR ACTION TEAM

92 FIRST DRIVE XTM RACING XLB

XTM's big-time buggy is 1/7 scale, .28-powered and a blast in the backyard—or on the track.

» BY CRAIG BIANCO

166 FAST \$400

If you've got four bills for RC, we've got eight cars for you to consider. » BY THE RC CAR ACTION TEAM

192 HEAD TO HEAD TRAXXAS REVO VS. TRAXXAS T-MAXX 2.5

We'll give away the ending right here on the contents page: Traxxas wins.

» BY THE RC CAR ACTION TEAM

208 RC CAR ACTION READER'S RIDE OF THE YEAR

Inside William Nicholson's tank-towing masterpiece. » BY THE RC CAR ACTION TEAM

218 PRODUCT PROBE LRP SPHERE & REEDY NEO-ONE BRUSHLESS MOTOR

Brushed or brushless? The Sphere can run both!

» BY THE RC CAR ACTION TEAM

232 JOEL'S BENCH PRO TRANSMITTER TECHNIQUE

Do's, don'ts, tips and tricks to tame your transmitter. » BY JOEL JOHNSON

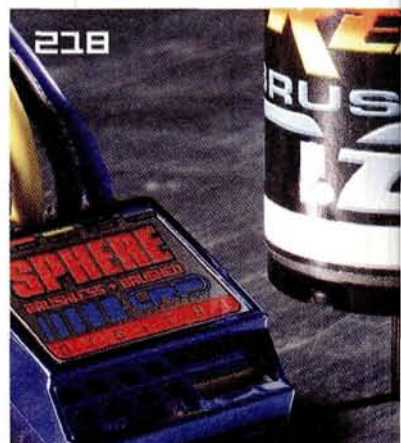
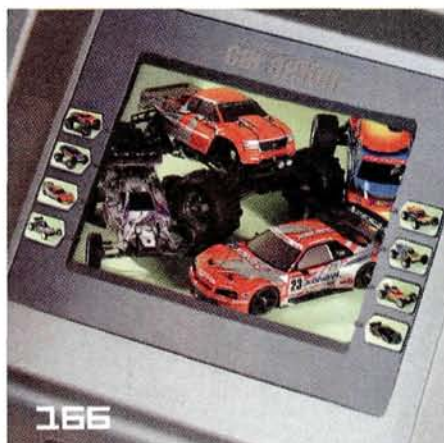
260 2004 ROAR FUEL SEDAN NATIONALS

ROAR should've held this race on Halloween, 'cause it was a Hara show!

» BY MIKE MYERS & LITO REYES

274 HOW TO POWER PORTING HPI NITRO STAR S-25

Got a Dremel? Get ready to grind some extra oomph into your engine. » BY STEVE POND



COVER STAR: OFNA Jammin' X1 RTR photographed by Pete Hall.



TRACK TESTS

- 104** OFNA Jammin' X1 RTR
Track-Ready RTR >> BY GEORGE M. GONZALEZ
- 118** GS Racing Storm RTR Plus
Fast-Moving Storm >> BY MATT HIGGINS
- 130** Kyosho Inferno MP 777 Special 1
Lucky Sevens >> BY JASON SAMS
- 144** Schumacher Fusion R12 Team
Faster Fusion >> BY GEORGE M. GONZALEZ

COLUMNS

- 24** Starting Line >> BY PETER VIEIRA
- 26** Readers Write
- 38** Readers' Rides >> BY PAUL ONORATO
- 46** Pit Tips >> BY GEORGE M. GONZALEZ
- 54** Troubleshooting >> BY GEORGE M. GONZALEZ
- 243** Racer News >> BY THE RC CAR ACTION TEAM
- 286** Maxx Overdrive
Twin Terror! >> BY JOHN HOWELL
- 296** 4X4
Race-Ready Tamiya TNX >> BY KEVIN HETMANSKI
- 308** Body Shop
Let There Be Light >> BY JOSHUA THIEL
- 322** Product Watch >> BY THE RC CAR ACTION TEAM
- 353** Backlot
Be Kevin's Friend! >> BY PETER VIEIRA

RESOURCES

- 339** Customer Service Information
- 341** Track Directory
- 348** Rcstore.com
- 351** Index of Advertisers



104



130



118



144

RC CAR ACTION.COM

ON THE WEB

>> Don't let tuning troubles get you down—get your engine running right with our easy engine-tuning how-to.

rccaraction.com/easyenginetuning

>> If you're looking for a racing radio and aren't sure which pistol you should be packin', click here for the Pro Radio Guide!

rccaraction.com/proradioguide

>> Looking for a race near you? Visit our online Track Directory to see where the action is.

rccaraction.com/trackdirectory



All Hail the New Stuff!

Welcome to our biggest issue ever—356 pages! Don't strain yourself; it's a heavy one, full of the latest in RC! It's time, once again, to bring on the new gear for the new year. After you eyeball all the hottest new products on the show circuit and in the latest press kits, it's easy to see the trends that will be big in '05. My crystal ball says ...

YOU'RE BUYING A MINI! But instead of a road-going car, it will be a truck! Team Losi cracked the scene wide open with the Mini-T, and now DuraTrax is on board with the Mini Quake (read the Track Test next month. We like it!), Trinity's got the Mini Spyder, Associated's RC18T will be here soon, XRAY has a truck version of its popular M18 and Thunder Tiger is getting in on the action, too. Most of the newcomers are 4WD—will Losi strike back with a 4WD Mini-T?

RTR—NOT SLOWING DOWN. Nearly every new release, except for the high-end racing kits, is available in full ready-to-run mode. The manufacturers wouldn't make 'em that way if they didn't sell, so that means RC is stronger than ever with more cars and trucks in action everywhere.

1/8-SCALE BUGGIES ARE THE NEXT MONSTER TRUCKS. We all know monster trucks have been booming since the T-Maxx boomed in 2000. It looks as if 1/8-scale buggies are shaping up to be The Next Big Thing for nitro guys. My theory? All the guys who are racing monsters are getting an eyeful of the buggy class and are thinking, "I've gotta try that."

BRUSHLESS STRIKES BACK! If your stockpile of brushed motors is the main reason you haven't looked into brushless power, then you've got to take a look at the LRP Sphere speed control. It can run brushed *and* brushless motors! That eliminates one big hurdle for new-to-brushless guys, and it could be the big feature that really heats up the brushless RC car scene.

IN THIS ISSUE

REVO VS. T-MAXX. Who's gonna win: Traxxas or, uh, Traxxas? We figured the best test for the Revo would be to pit it against the number-one truck from our previous shootouts: the T-Maxx! Is the Revo really better or just really different?

POWER PORTING! You know "the guy" at the track who says he's an engine expert and can port your engine for you? That guy is an idiot. Senior editor Steve Pond is a real expert, and he'll show you how to make mega-power mods to HPI's .25 powerplant yourself!

Until next month.

Peter Vieira

Peter Vieira
Executive Editor



20 YEARS OF RC CAR ACTION!

Like the anniversary logo? You'll be seeing it on all the 2005 issues as we celebrate 20 years of publishing the world's best-selling RC car magazine. If you've got issue number one (that's it on the left), you're an RC super-fan!



EDITORIAL

Editorial Director JON CHAPPELL
Executive Editor PETER VIEIRA
Senior Technical Editor STEVE POND
Senior Editor JOHN HOWELL
Associate Editors MATT BOYD, KEVIN HETMANSKI, MATT HIGGINS,
PAUL ONORATO
Managing Editor DANA DONIA

WEST COAST

Senior Editor GEORGE M. GONZALEZ
Associate Editor JASON SAMS

CONTRIBUTORS

ROB ALLGEYER, KENNY BERGSCHULTZ, JOEL JOHNSON,
DAVID C. KONNEKER, BRIAN LESLIE, ELVIS MACHADO, NATHAN MILLER,
ERIC QUERTEMOUS, LITO REYES, NICK SAVA, JOSHUA THIEL,
RICHARD THOMPSON, RICHARD TRUJILLO, BILL ZEGERS

COPY

Copy Director LYNNE SEWELL
Senior Copyeditor PAIGE L. HAMILTON
Copyeditors SUMA KAVIRAJAN, COREY M. WEBER, ELLEN WILDER

ART/DESIGN

Creative Director BETTY K. NERO
Senior Art Director LESLIE COSTA
Associate Art Directors MIKE AMADITZ, CHRISTOPHER CASEY,
VICTORIA HOWELL, JOE ULATOWSKI
Associate Promo Art Director CHRISTOPHER CHU
Staff Photographers PETE HALL, DERON NEBLETT

ADVERTISING

Account Executives JASON ASCH, ALEX CHUNG, JOHN ELLERTSON,
RORY GORDON, BOB PINA
Advertising Traffic Coordinator CHRISTINE DILAURA
Sales Administrator DARLENE ALTRO

CONSUMER MARKETING

Consumer Marketing Director WILLIAM S. CARTER
Fulfillment Manager STACEY NELSON
Product Marketing Manager JASON BONGO

CORPORATE MARKETING

Corporate Marketing Director JENNIFER WARE
Marketing Coordinator MARIE TERIO

PRODUCTION

Director of Production and Manufacturing STEPHEN R. BEST
Senior Production Manager CHRISTINE BACHMANN
Production Manager CHRISTINA MASCHKE
Senior Production Coordinator BOBBI-JO BALDWIN
Production Coordinator SHERRY MORGAN
Print Coordinator TOMLINSON S. WHEELER

INTERNET

Web Developers HOLLY HANSEN, LEO FICKS
Web Programmer JAIME TORRES
Web Assistant GAZI AHMED

PUBLISHING

Group Publishers LOUIS V. DeFRANCESCO JR.,
YVONNE M. DeFRANCESCO

CORPORATE

Chairman of the Board ALDO DeFRANCESCO
President and CEO LOUIS V. DeFRANCESCO JR.
Executive Vice President YVONNE M. DeFRANCESCO
Chief Financial Officer CAROL SHEPHERD

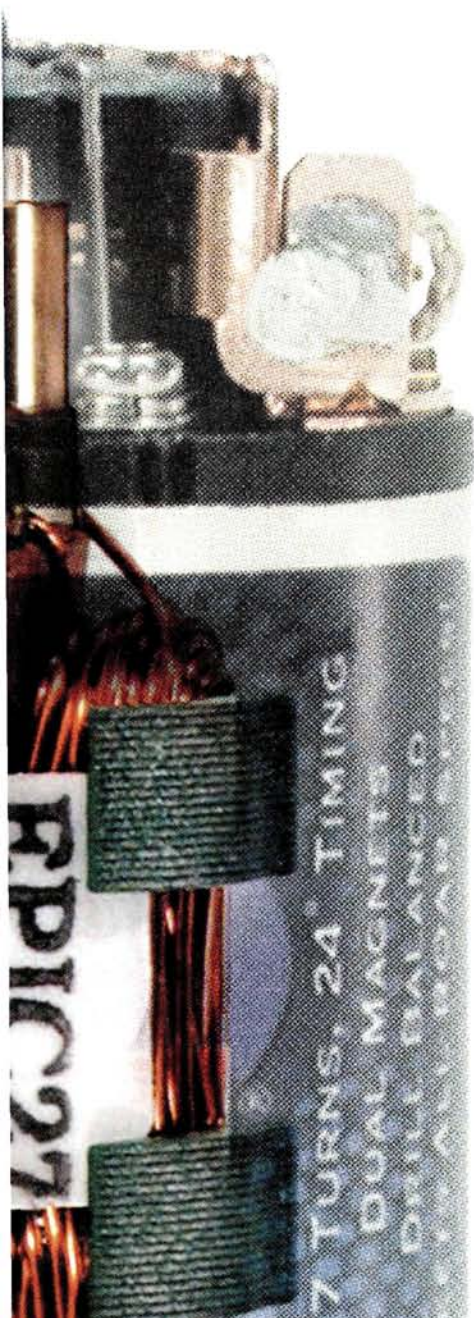


100 East Ridge, Ridgefield, CT 06877-4606 USA

RCCARACTION.COM

PRINTED IN THE USA

HOTSTUFF



EPIC ROAR STOCK
27 Turn, 22 Awg
24° Locked Timing
Dual Magnets
Drill Balanced
Rebuildable

EP1111, ROAR Stock
EP1112, ROAR Pro Stock



www.epicmotorsports.com

readerswrite

sponsored by

TRINITY

WRITE TO US! Send snail mail to "Readers Write," RC Car Action, Air Age Media, 100 East Ridge, Ridgefield, CT 06877-4606 USA, or email readerswrite@airage.com. Letters may be edited for style and length. Sorry, we cannot reply to every one.

SAVAGE SPYDER?

Hey, I was wondering whether HPI Savage parts would fit the Spyder. That would be cool because then you could use all the Savage parts from Hardcore, Golden Horizons and everybody else on it. [email]
 Gary

The Spyder has a Savage-like chassis layout, but it has nothing to do with HPI's truck, and there's no parts compatibility between the two trucks (with the exception of the trucks' hand-held shaft-start units, that is). You can use the HPI Roto Start to fire up the Spyder or use the Spyder's starter to turn over the Savage. But if it's upgrades you want, don't worry; I'm sure Trinity will offer a bunch.
 —Pete



TOUGH CALL

I'm a big fan of your magazine and just got started in RC a little while ago. I'm leaning toward nitro, but I want to know what you prefer for my first nitro car: HPI Nitro RS4 3 Evo or Associated Nitro TC3 RTR Plus. As you know, both of these cars come with a .15 engine. Thanks! [email]
 Philip Ahn

Hmmm, tough call. Both have a .15 engine, plastic shocks, shaft drive and 2-speed transmission. I like the TC3's clutch-type transmission better than the Evo's pawl-type, but I like the Evo's gear diffs better than the TC3's ball diffs. Also, the TC3 has an aluminum pipe; the Evo has plastic. But both seem to work equally well. Your decision might come down to the starting system. The Evo has Roto Start, which is great, but it requires that you buy a stick pack and charger. That's no biggie if you've already got 'em, but if you're buying them just for the Evo, it jacks up the getting-started cost by about \$40. On the other hand, the TC3's pull-starter is ready to yank.
 —Pete

PARENT PROBLEM

I need some help. I have a Traxxas Rustler and a Team Losi Mini-T, and right now, I want to buy some new parts for both, but mainly for my Mini-T. But my parents are not letting me buy anything for these "toys" (that's what they call them) because they say it is a waste of my money. Now that I'm 14, they say I need to save

up for a car. But right now, I don't care if I get a car in two years. All I'm really asking is how do I convince them that these are not toys and to let me buy new parts?
 [email]
 Zach

Trust me; you'll want that car in two years. Whose money are you saving? Allowance from Mom and Dad? Or money you earned? If they're giving it to you, I gotta side with the 'rents. But if you're earning it, I would create a budget and show your folks your plan to save a percentage of it each month for a car and keep a percentage for going to the movies, eating bad food, RC, etc. You're 14. Live a little.
 —Pete

EZ-START OR NOT?

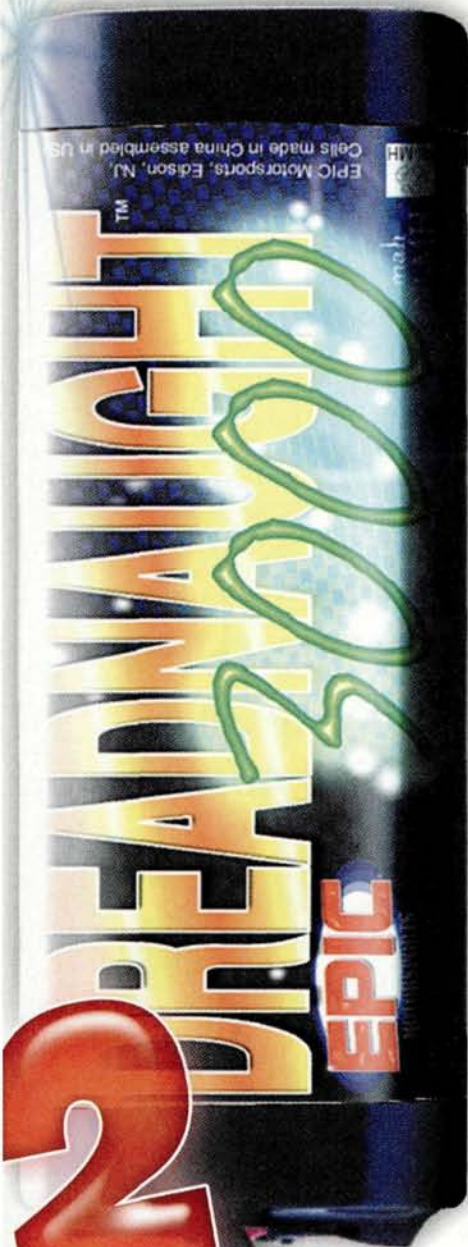
Hey guys; I really liked the ".18 Engine Shootout." It came just in time because my T-Maxx is ready for a new engine! I have a question about the onboard EZ-Start. Will I get better performance if I leave it off and use a pull-starter? I know the truck will be lighter, but will the engine be "free-er" without it? [email]
 Ryan Cress

Whether you use a pull-starter or the EZ-Start system, the engine has to spin a drive dog for the crank that turns inside a one-way bearing. There isn't an advantage to running a pull-starter other than a weight savings, but there



is the big disadvantage of losing the EZ-Start's diagnostic capability, not to mention the pure convenience of electric starting. I'd stick with the EZ-Start myself. For that matter, I'd stick with your T-Maxx's TRX 2.5 engine, unless you just gotta have an .18. Check out Traxxas' Lifetime Engine Replacement Plan; you can exchange your old engine for a new one for half the retail price! All the details are at traxxas.com.
 —Pete

HOT STUFF



**3000 + MAH
HI-PERFORMANCE
BATTERY PACKS AT
SPECIAL PRICING**

More run time and power for your E-Maxx, Team Losi, Kyosho and Associated buggies or just about any car, truck, boat or plane that uses a stick battery pack.

Special pricing only from EPIC!
EP0030, \$59.99!



www.epicmotorsports.com

readerswrite

PANTHER'S PADDLE

Just wanted to let you know about an error I found in the October '04 issue. In the "Hot Rubber!" article, the Pro-Line Sand Paw picture is actually of the Panther Paddle tire. Other than that, the article was fantastic. I've been waiting for a 2.2 tire guide for a long time.

[email]

Steve Welsh

Right you are, Steve. The Pro-Line Paddle is pictured here, and a pair of Pro-Line tires is on its way to you.

—Pete

A TRUCK BY ANY OTHER NAME ...

Why do you guys write "Team Losi Triple-XT" and "Triple-XNT" instead of "XXX-T and XXX-NT"? Those are the real names of those trucks.

[email]

Adam

It's just easier to read. When I come across all those Xs, my mind wants to say "Ecks ecks ecks tee," but "Triple-XT" just flows out properly. Kind of like "C-3Po" and "See Threepio."

—Pete

TWIN FORCE TROUBLE

I read your good review of the Twin Force. I was in the market for a new truck, so I bought it. Bad decision. The gear that goes directly

into the gearbox from the driveshaft and the round gear that it meets keep stripping. I got this truck from Tower Hobbies, and they directed me to a support website. The folks there sent me new gears free of charge. Guess what? The new gears stripped again after two runs. I don't excessively abuse this truck in any way. Has anyone else had this problem?

[email]

Tim

I haven't experienced any problems with my Twin Force, and every time it sees action it gets some serious air and is blasted over rough terrain. It's safe to say that I have put the Twin Force's durability to the test. Check the gear mesh between the spur and pinion gears. If this is incorrectly set, these gears (especially the spur) will easily strip. To properly set the mesh (or lash as it's often called), place a strip of notebook paper between the gears as you tighten the motor screws. The thickness of the paper should leave just the right amount of play between the gears. When you remove the paper, there should be a "tick" of free play between the gears. Also, make sure the slipper isn't too tight. It's there to protect the gears from stripping. Just tighten them per the manual's instructions, and you'll be fine.

—Matt Higgins

YOU SAID IT

sponsored by

TRINITY

Why aren't there more electric monster trucks?

I've been looking around, and the latest trucks (besides the Kyosho Twin Force, which is pretty expensive) are all nitro. Wouldn't it be cool to have an electric Revo or Savage? Getting an E-Maxx is out of the question because my brother already has one, and you know about the whole brotherly love deal. And by the way, OFNA or another big 1/8-scale buggy manufacturer should design a conversion kit that would turn one of its nitro buggies into an electric one. My brother has been pondering the idea of dropping his E-Maxx tranny into an Ultra MBX R2. Can you guys help me out here, or am I just missing something?

Ben Jackson
Denver, CO



I love the idea of an electric big buggy. The conversion idea could work, but I'm more turned on by the idea of a purpose-built machine made from the ground up for battery power—now that would be cool. I'd also love to see more electric monsters to compete with the E-Maxx and Twin Force myself, but as long as nitro trucks are handily outselling electrics, I'm afraid we won't see a lot of action in the battery-powered monster truck category. Looks like you'll just have to pony up for a Twin Force or E-Maxx—tell your brother "tough!"

—Pete

Each month, "Readers Write" sponsor Team Trinity awards the "You said it" letter writer the Reference body of his choice. This is the Reference Wasp.



BRAD MINER, AMARILLO, TX **TRAXXAS T-MAXX 2.5**

Brad chose orange as the accent color for his modified T-Maxx so it would stand out from the hundreds out there. Since RPM offers its supertough nylon-composite parts in a dyeable white, Brad picked up its suspension arms, bumpers and StableMaxx Clawz wheels and dyed them orange. These parts, along with the orange paint job on the Pro-Line Hummer H2 body, make his ride unique and eye-catching. He also added a Traxxas aluminum tuned pipe, a Hitec high-torque steering servo, an OFNA micro fail-safe and Hot Bodies Padlock tires.

JOSH REECE, HUNTSVILLE, AL **KYOSHO SUPERTEN FW-04**

It definitely pays to be nice to your friends. Josh scored this used Kyosho SuperTen from a friend who had let it sit in a garage for several years. Josh overhauled the car by dismantling the chassis and rebuilding it with a 2-speed tranny, an OPS .15 engine and an HPI manifold and tuned pipe. The finishing touch was a new Kyosho McLaren body, and now the car is back in action. So what else does your friend have, Josh?



RICH LAZZARI THUNDER BAY, ONTARIO CANADA **HPI SAVAGE SS**

Being a diehard Matt Kenseth fan, Rich could not resist mounting a NASCAR no. 17 body on the new Savage SS that he plans to race when the weather gets warmer. To make his monster race-ready, he added Hitec metal-gear servos, an HPI 1200mAh receiver battery pack and heavy-duty cup joints. The aluminum bumpers will help protect his truck during hard racing; they were custom-made by his buddy Gilles.



RYAN GERRISH, SALEM, OR **CUSTOM ROCK CRAWLER**

As soon as we saw pictures of Ryan's super-realistic custom rock crawler, we just had to make it the Reader's Ride of the Month. Ryan belongs to the ORCRC (Oregon RC Rock Crawlers), and he built this badass truck so it would not only have a scale appearance but would also perform on the rough stuff. It features Tamiya TLT-1 axles with locked diffs, 4-wheel steering, a custom Kydex chassis, Traxxas Stampede tranny and a Kyosho Magnetic Mayhem motor. He uses a Futaba 4-channel radio and a Novak Super Rooster ESC. The truck also has 16 working LED lights, a functional front winch and Imx Swamp Dawg tires. Great job!

**reader's ride
OF THE MONTH**





JASON PRISMANTAS, OMAHA, NE
TRAXXAS T-MAXX 2.5

One of the aspects of RC that Jason loves best is building a car or truck from the ground up. He also loves to design and paint the bodies for those vehicles. Under this flamed-out Pro-Line Ford F-150 body is a Traxxas T-Maxx that he loaded with aftermarket gear. Jason went almost exclusively with Hardcore Racing aluminum hop-ups for the transformation. The suspension arms, bulkheads, bumpers, skidplates, shock towers, gearboxes, receiver and battery box, wheels, chassis, chassis braces and engine-cooling head are all from Hardcore. Additional hop-ups include MIP chrome CVDs and tuned pipe, a K&N air filter and Hot Bodies shocks.



JEREMY COPLEY, STARKVILLE, MS
TEAM ASSOCIATED RC10GT

People tend to avoid painting a new body for their ride because they think it's too difficult to get a nice-looking result. Here is Jeremy's first attempt, and it just goes to show how nice a two-color paint job can be. He says all it took was a little time and patience. The Pro-Line Crowd Pleazer body sits on an RC10GT stadium truck. For traction, Jeremy uses Pro-Line LugNut T tires in the rear and The Edge tires up front.

**Got
a New
RTR?
Power it
up with
Reedy!**



Reedy Quasar AC/DC Battery Charger.
 Reedy's economical #610 "Quasar" peak-detecting charger plugs right into the wall (or works from any 12V power source) and adjusts from .5 amps to 6.5 amps to charge Ni-CD, Ni-MH or receiver packs.

#610 Reedy Quasar AC/DC Charger

Reedy Tire Warmers. Be ready for racing from the very first lap! Reedy Tire Warmers work from your 6-cell battery pack to pre-heat your touring car's rubber tires to race temperature.

#608 Reedy Tire Warmers



REEDY



CHRIS PETERSEN
JONESBORO, GA

HPI RACING MICRO RS4

Chris has been in and out of RC since Jammin' Jay Halsey was just Jay Halsey. Normally, every time he gets back into it, he gets a bigger, badder and faster car, but this time, he went smaller. Here is his 1/18-scale HPI Micro RS4 that sports an "Eddie Van Halen"-inspired paint job on a Nissan Skyline body. He convinced a few coworkers to get similar setups, and they now bash around in the boardroom. ■



JAMES PANKEY, ESCONDIDO, CA

TAMIYA TXT-1

Our friend James Pankey builds cool-looking project vehicles, and his latest one keeps the streak going. The H2 Hummer body was lifted from a 1/6-scale RC truck made by New Bright. The accurately detailed interior features opening doors and a hood with an engine compartment. Under the body is a Tamiya TXT-1 fitted with 8 shocks from an HPI Savage, 2 Hitec servos for 4-wheel steering, wheels and tires from Imex, a Novak Super Rooster ESC and an 8-cell battery pack to spin the two Traxxas Titan motors. One of the many modifications James made was to extend the wheelbase to 16 inches by altering the suspension arms and driveshafts. He tells us the truck has no trouble climbing over large obstacles.



Reedy Ni-MH Receiver Packs for Nitro Cars and Trucks. Reedy receiver packs give you the long-lasting, reliable power needed for nitro racing, and have a great low price that makes them your **BEST** choice!

#615 Reedy Ni-MH Receiver Pack,
(Hump style for RC10GT, Monster GT, Etc.)

#614 Reedy Ni-MH Receiver pack,
(Flat style for Nitro TC3, etc.)

ONLY
\$59.99

Reedy's "Rated-X" Matched sport packs. Fully assembled in clear tubes so you can see the matching info right on the label of each cell. Don't settle for "mystery" cells in your sport packs... get Reedy's "X-Rated" packs and see the power you've been missing!

#697 Reedy "Rated-X" Sport Pack, Sanyo 3300 cells

#699 Reedy "Rated-X" Sport Pack, Panasonic 3000 cells



ONLY
\$64.99



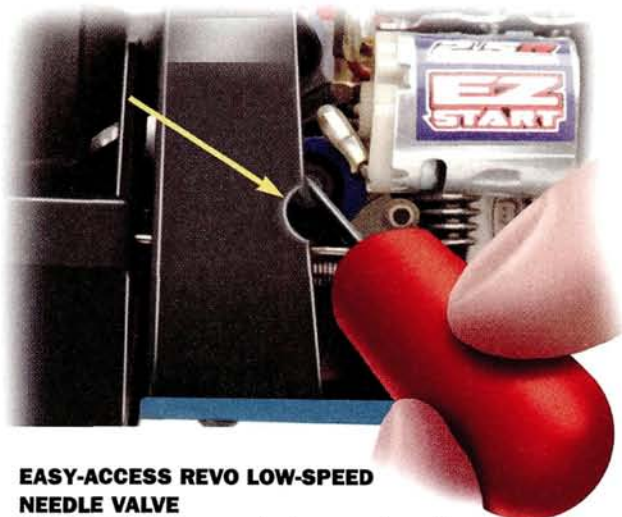
Reedy "Spec 19 Quad-Mag Motor."

Step up the power of your RTR with Reedy's Quad-Magnet "Spec 19 Motor! A great choice for the B4 RTR, the TC3 RTR, or any Ready-to-Run electric with a speed control rated for a 19-turn or less motor.

#513 Reedy Spec 19 "Quad-Mag" Motor

A Division of Associated Electrics
3585 Cadillac Ave. Costa Mesa, CA 92626

BY GEORGE M. GONZALEZ



EASY-ACCESS REVO LOW-SPEED NEEDLE VALVE

I found it hard to access the low-speed needle on the Traxxas Revo because the molded roll bar is in the way. Grind a small notch in the roll bar to improve access to the needle valve. To grind the notch, use a Dremel tool equipped with a sanding drum or a round file.



CHEAP AND CONVENIENT PIT CADDY

Small plastic tool caddies like the one shown here are perfect for hauling your nitro support gear from the pits to the track. Most tool caddies have two or three compartments to store your glow-plug igniter, temp gun, shaft starter or EZ-Start, fuel bottle, tools, extra glow plugs and more. I picked up my caddy at the local hardware store for less than \$4.

WIN AN RC CAR ACTION SUBSCRIPTION! Do you have a Pit Tip idea? Submit it, and you could win a 6-month subscription (or an extension of your subscription). "Tip of the Month" winners will be considered for a grand prize—an OFNA RTR. Send a sketch or photo to "Pit Tips," RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Print your name and address clearly on each tip you submit. You may also email your tip to pittips@rccaraction.com. Sorry, we can't acknowledge every tip or return the ones we don't use.

EASY, ACCURATE WHEEL ALIGNMENT

If you use foam tires, you know that precise camber adjustment is required to ensure long and even tire wear. To properly set the camber on your car, draw a line across the tires' contact patches with a piece of chalk. Drive the car around the track for a few minutes, and then pull the car off the track and check the chalk. The chalk will show the contact patch the tires have with the track surface. If the chalk has worn away on the outside of a tire, shorten the camber rod slightly to increase negative camber. Do the opposite if the chalk has worn away on the inside of the tire.

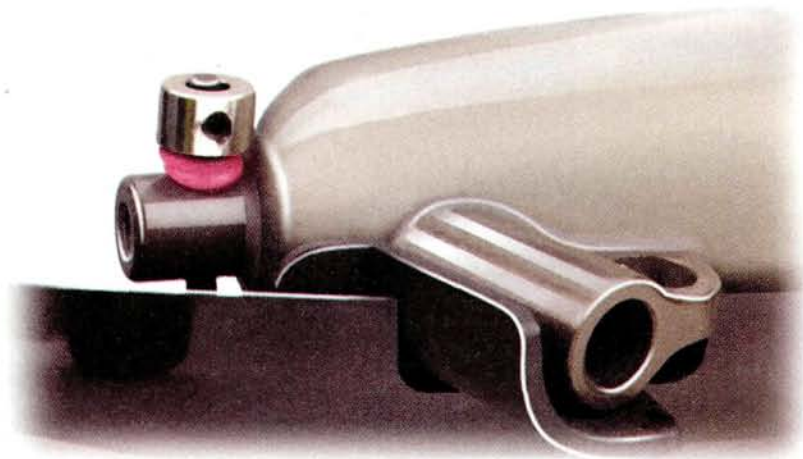


MGT DIFF TUNING FOR MORE STEERING

This tip comes directly from Team Associated/Thunder Tiger driver Richard Saxton. You can tune the Team Associated Monster GT's sealed differentials by using silicone diff fluid of different viscosities. To improve steering, fill the rear diff with 5,000 to 10,000WT diff fluid. Before you add the fluid, you'll need to get rid of the factory grease that's packed into the diff. Fill the clean diff with fluid and seal it. You can leave the front diff alone or fill it with 1,000WT diff fluid. Either way, your truck will have more steering.

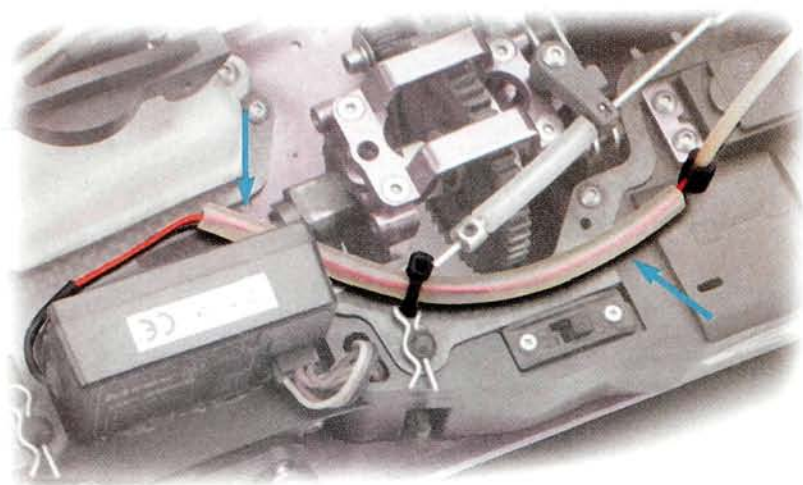
LIGHTER, BETTER-HANDLING T-MAXX TIRES

Jim Lubic from Plano, TX, sent in this great tip for improving the performance of your Maxx truck. The stock Maxx tires work well, but the squared-off edges of the chevron paddles make the truck a little "tipsy" when cornering at speed and cause the tires to hang up on ruts and cracks. You can make the truck handle better and improve acceleration by cutting off the edges of the chevron paddles as shown. If you modify the paddles on both sides of all four tires, you'll trim away nearly 2 ounces of rotating mass!



SUPER-SECURE TUNED PIPE

Tuned pipes are notorious for coming off the pipe hanger, especially during long Mains. In addition to applying thread-lock to the setscrew that secures the pipe to the hanger, slide an 1/8-inch linkage collar (available from Du-Bro) onto the pipe hanger as an extra precaution. Slide a few O-rings between the pipe and the collar for additional shock protection.



NO-GLITCH ANTENNA ROUTING

If your receiver's antenna lead must travel a few inches before it reaches the antenna mount, it can easily be damaged and become a potential source of glitching. Feed the lead through a piece of fuel line to protect it from the elements and shield it from your vehicle's metal and graphite parts.

CARDBOARD FUEL CATCH

Some RC manufacturers instruct you to run the first couple of break-in tanks of fuel through the engine with the vehicle on a stand and the wheels off the ground. Unfortunately, unburned fuel and oil will leak out of the tuned pipe and can stain your driveway or street. To avoid this, place a



piece of cardboard under the pipe. Put a flap on one end of the cardboard to collect the fuel and oil that shoots out of the pipe. ■

"Pit Tips" are submitted by readers and are screened for functionality, feasibility and safety but are not tested by Radio Control Car Action. Radio Control Car Action and the submitting authors are not responsible for personal injury or damage to models, tools, or persons that result from readers' use of "Pit Tips." Readers are strongly encouraged to check their equipment's warranty before they make any modifications.

Troubleshooting

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

BY GEORGE M. GONZALEZ

► **NEED HELP?** Send your "Troubleshooting" questions and comments to troubleshooting@airage.com, or mail them to "Troubleshooting," c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

Q STRIPPED WHEELS

I bought a complete set of Pro-Line Bow-Tie tires and Velocity rims so I can race my Traxxas T-Maxx 2.5 at my local track. Unfortunately, I stripped one of the rims on the second run when the locknut that holds the right, rear tire in place came loose. The inside portion where the hex hub is installed has become rounded, and the hex-shaped adapter just spins inside the hub. It took me 2 months to save up for the wheels and tires, and I can't afford to buy another set. Is there any way I can fix the rim?

Jerry Martel

A The hex-shaped hub inside the wheel can easily strip if the locknut that secures the wheel to the axle becomes loose. That's why you have to check these locknuts after every run to make sure they're tight. To fix the rim, glue the plastic hex-hub adapter that came with your truck to the wheel. Apply a liberal amount of CA glue to the stripped wheel hub. Wipe off the excess glue, and then let the CA dry overnight. The CA will fill in the gaps and glue the hex adapter to the wheel. You'll be able to run the truck again, but you'll have to be careful not to lose the drive pin when you remove the wheel for maintenance because the hex adapter is glued to the rim. Of course, you'll have to buy new hex adapters when you buy your next set of wheels, but they're only about \$5 for a full set. Use fresh locknuts and a dab of thread-lock when you install your wheels, and check the wheel nuts after each run.



Apply a liberal amount of CA glue to the wheel ...



... then install the hex adapter into the wheel. Let the glue dry overnight before you install the wheel back on your truck.

REAL PERFORMANCE PRODUCTS!

T-Maxx/2.5-Maxx Steel Top Shaft

NEW



This precision machined **hardened** steel top shaft will fit all T-Maxx. Includes oversized ball bearing. RRP 8525

T-Maxx/2.5-Maxx FORWARD ONLY Steel Gear Kit

NEW



This kit contains a 26T **hardened** steel output gear, a forward drive hub adaptor, steel spacer and pin. RRP 8586. **Hardened** aluminum version RRP 8585.

T-Maxx/2.5-Maxx Hardened Forward Primary Gear

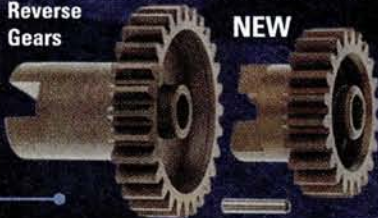
Precision machined from solid steel and then **hardened**. RRP 8529
Hardened aluminum version RRP 8528.

NEW

www.robinsonracing.com

T-Maxx/2.5-Maxx Forward Primary and Reverse Gears

NEW



This kit contains a precision machined **hardened** steel primary forward gear, a **hardened** aluminum reverse gear and pin. RRP 8521

MAKE NO COMPROMISES!

T/E-Maxx/2.5-Maxx Accessory Spurs



A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72, 74 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

T-Maxx/2.5-Maxx Lightened Spur And Double-Disc™ Slipper Kit



RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx/2.5-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor, 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

T-Maxx/2.5-Maxx Primary Reverse Gear

This gear is precision machined from solid aluminum and **hardened**. Includes pin. RRP 8522

NEW

sponsored by



ROBINSON RACING PRODUCTS

Q WON'T FLY STRAIGHT

I have a Team Associated T4 that I race regularly at my local track. They added a brushless-motor class, so I decided to give it a try. I bought a Novak Super Sport Brushless Motor, but I'm having trouble getting used to driving the truck with the new power system. For some reason, it flies nose-up when going over jumps and sometimes flips over backwards. I have to immediately grab the brakes to get the nose back down, and sometimes, my reflexes aren't fast enough. Is there any way to dial in drag brake? The instruction sheet doesn't have any information on drag brakes.

Gary Loeke

The Novak Super Sport Brushless Motor operates without the cogging effect that is common with typical brush-type electric motors. Basically, the rotor spins free,

unlike the commutator in the brushed motor that is slowed down by the magnets when the throttle is returned to neutral. Unfortunately, the Super Sport system doesn't have a drag-brake profile, and that means that you'll have to alter your driving style and grow accustomed to how the truck runs with the brushless motor installed. Fortunately, all the racers that you will be competing against will have to alter their driving styles as well.

Try dialing in some manual drag brake at the transmitter by advancing the throttle trim lever slightly to the brake side. This will cause a drag-brake effect, but the downside is that you'll end up with a slight dead spot in the throttle trigger around the neutral area. Novak plans to release a racing brushless motor system in the future, and you can bet that it will have a drag-brake profile.



Advancing the throttle trim lever toward the brake side will provide a simulated drag-brake effect. You will notice a slight dead spot on the throttle trigger around the neutral area, but most racers don't seem to mind.

T/E-Maxx/2.5-Maxx Steel Diff Gear Set



T/E-Maxx/2.5-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel Phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

T-Maxx/2.5-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. Also fits newer T-Maxx. RRP 8562 Older style half shafts use Brake Kit RRP 8560.

DON'T SETTLE FOR SECOND!



T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue, RRP 8550 Natural Silver
NEW 2.5-Maxx Vented Flywheel, Blue Only RRP 8552.

T/E-Maxx/2.5-Maxx Replacement Pinion



This precision machined steel pinion fits RRP 8590 Diff Gear. RRP 8591

T-Maxx/2.5-Maxx Hardened Steel Clutchbells



CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

www.robinsonracing.com

DIRTY AIR FILTER

Q I bought an RTR buggy to bash around with at my local track. The buggy ran great for the first half-gallon of fuel, but it has become very stubborn lately. For some reason, the engine stalls after a few minutes of running and refuses to start until it cools down. I checked the air filter and noticed that it was very dirty, and there was a buildup of dirt around the carburetor's opening. I cleaned the carb and the air filter and installed a new glow plug just in case, but the engine still refuses to run for more than a couple of minutes. Greg Jarvis

A Unfortunately, your engine has the telltale signs of needing a new piston and sleeve, Greg. The engine was probably damaged by your running it with an unlubed and/or dirty air filter. The air filter must be cleaned and lubed after every hour of running or every two or three tanks of fuel if you run the buggy in extremely dusty conditions. A dirty air filter will allow dirt to pass through into the carb and inside the combustion chamber. It only takes a little grit to ruin an engine. You have a couple of options: install a new piston and sleeve or pick up a new engine. Replacing the piston and sleeve will be more economical, but you may need assistance if you're not familiar with 2-stroke RC engines. Make sure to have extra air-filter elements and air-filter lube in your toolbox to regularly maintain the air filter. Your engine will last a lot longer if you do.



It took only two tanks of fuel to get this air filter dirty because the vehicle was run on a dusty off-road track. This air filter must be cleaned and re-lubed, or else dirt may pass through into the carb.

Clean the air filter in soapy water, and then put it aside to dry. After the air-filter element has dried, apply a few drops of air-filter lube in a bag as shown and work the lube into the filter.



RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. RRP 2365

RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this RC10-GT gear is lightened and hardened for super quiet precision and extra long life. Black tranny grease included. RRP 2213

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

RC-10GT Hardened Steel Clutchbells



These steel Clutch Bells are CNC machined from solid steel then the teeth are machined on. This makes the part stronger with less gear "run out". Available in 14T thru 20T, 22T and 24T. RRP 22XX

www.robinsonracing.com

RC-10GT 32 Pitch Spurs



Precision machined from heat-resistant, super tough plastic, these spurs mesh flawlessly with our Clutchbells. Available in 63T thru 67T. RRP 2263 - RRP 2267.

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT

DON'T SETTLE FOR SECOND!

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T. RRP 1670 - RRP 1680



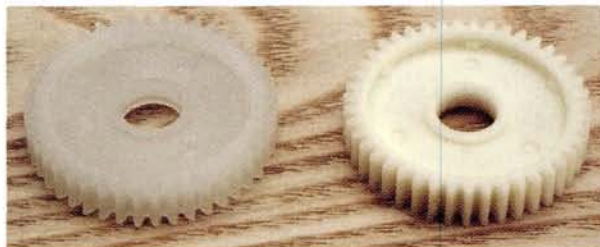
Q STRIPPED TNX SPUR GEAR

I hope that you can help me with a problem I'm having with my Tamiya TNX. I can run the truck for hours in my backyard or on the street in front of my house, but I strip my spur gears every time I run it at my local track. The truck has fixed engine mounts, and that means the gear mesh is non-adjustable. I checked the mesh between the spur gear and the clutch bell, and it's perfect—just a slight amount of play between the gears. I also locked up the slipper clutch because someone told me that running the truck with a loose slipper-clutch setting can overheat the gear and cause it to become soft. Please help me; I'm tired of replacing spur gears every time I run the truck at the track.

Brad Samen

A I actually stripped the original spur gear that came with my TNX, but the truck has been holding up just fine since I've replaced the gear. I've seen other racers at the track with the same problem. Your best bet is to install a Terra Crusher spur gear (item no. 50960) instead of buying the stock replacement gear. The Terra Crusher spur gear is molded from a more durable material. The racers I spoke with said that installing the Terra Crusher spur gear fixed the problem. You might also consider applying a little grease to the spur gear teeth. The grease will help fight friction that can heat up the gear and soften it.

The stock TNX spur gear is on the left, and the Terra Crusher spur gear is on the right. The Terra Crusher is molded from different material that seems to hold up better.



TOOLBOX



Tamiya Non-Scratch Pliers

Tamiya's Non-Scratch Pliers have plastic jaws that securely grasp the part you are working on and protect it from damage. It's ideal for holding a flywheel stationary during clutch assembly. The spring-loaded jaws feature an 8-step adjustment and can open to a maximum width of 46mm. You can easily remove the plastic jaw pads for heavier jobs that require a steel bite.

Tamiya Non-Scratch Pliers—74061; \$26.
 Tamiya America Inc. (800) 826-4922;
tamiyausa.com.

HPI Savage 21 Nitro Steel Combo



This new 52 tooth Spur and 14 tooth Clutch Bell are CNC machined from solid steel and then hardened for unmatched performance and durability.
 RRP 7052

NEW

HPI Savage 21 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling.
 RRP 7000

NEW

Stealth Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any Associated or HPI electric car or truck.
 RRP 1860 thru RRP 1896.

Electric Car And Truck Pinions:

48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone!
 Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

48P Hard Nickel Plated Steel Pinions

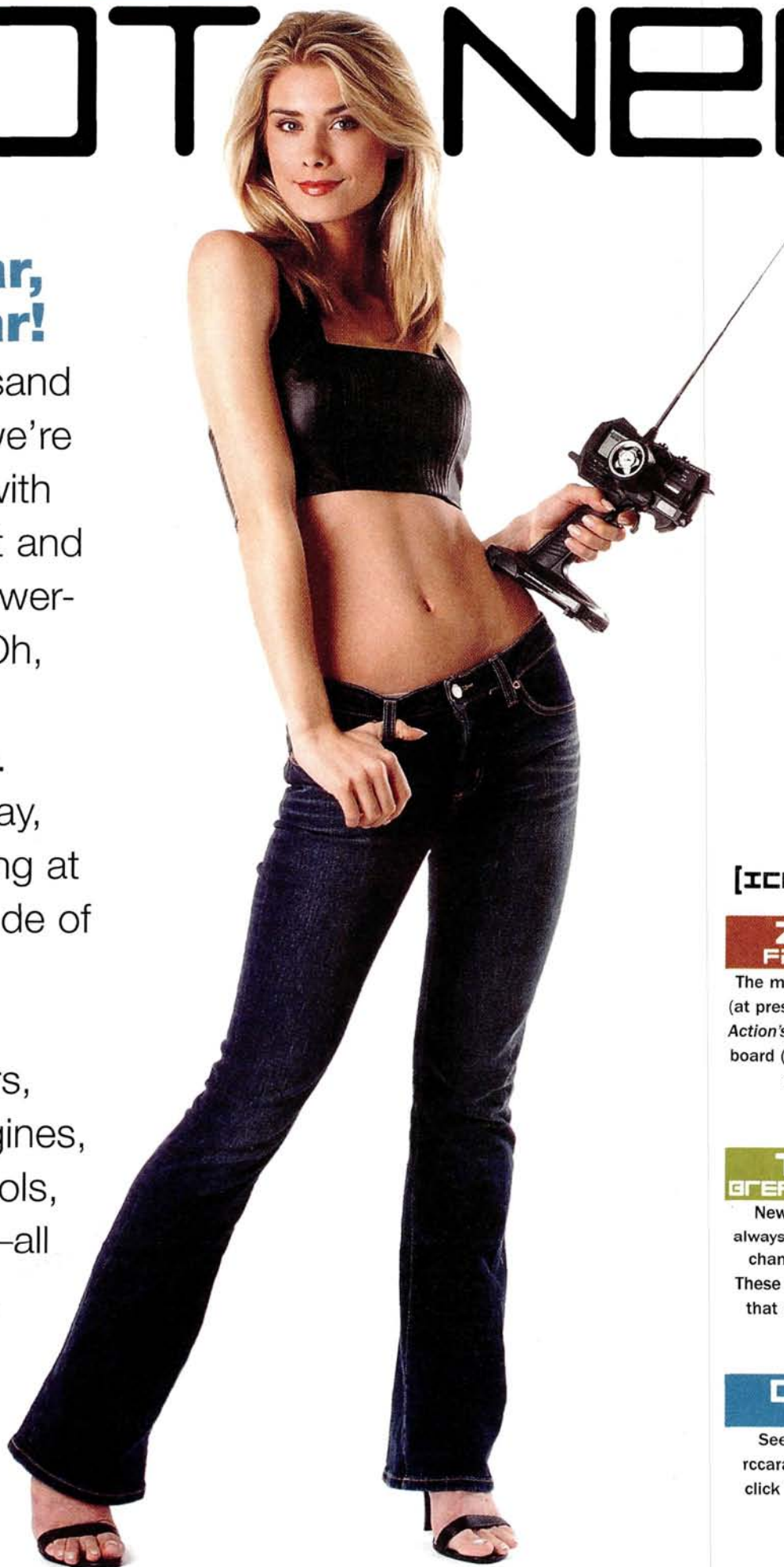


These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

HOT NEW

New year, new gear!

It's two-thousand oh-five and we're stayin' alive with all the hottest and happenin' power-products.... Oh, man, that's enough hype. Suffice it to say, you are looking at the mother lode of new stuff for 2005. Cars, trucks, motors, batteries, engines, radio gear, tools, accessories—all here and hot, new, now!



[ICONS KEY]

ZONE FAVORITE

The most-viewed items (at presstime) on *RC Car Action's* RC Zone bulletin board (rczone.com) earn this honor!

TECH BREAKTHROUGH

New technology is always part of the ever-changing RC scene. These are the products that push the limits.

CLICK TRIP

See more pics at rccaraction.com! Just click "New at the RC Zone."

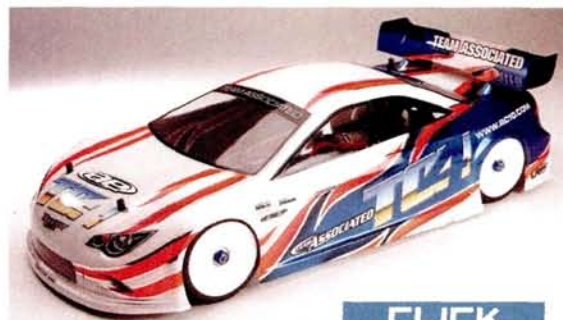
NOW OVER 100 NEW CARS, TRUCKS, ENGINES, MOTORS & MORE!

by the RC Car Action team

Trinity Itsy-bitsy Spyder

Trinity's mini Spyder adds 4WD to the 1/18-scale formula with shaft-drive, ball-bearings and a stadium stance on knobby tires and chrome wheels. Trinity will have the Spyder in RTR and "Pro" (rolling chassis minus electronics) versions.

Item nos. to be announced, \$150 RTR



CLICK
TRIP

Team Associated TC4

According to A-Team drivers, an out-of-the-box TC4 drives even better than Associated's best TC3 setups! It looks a lot like the TC3, but it has a new motor mount and heat sink, redesigned shock towers, improved suspension, all-new steering and a narrower chassis. VCS macro shocks, ball diffs and genuine MIP CVDs round out the specs. Hot car! 30100, \$370 [list price]

XTM Racing XLB

The new XLB from XTM is looking to beat up on its smaller 1/8-scale buggy counterparts. This oversize 4WD buggy (based on the Mammoth monster truck) includes an SH .28 big-block engine, 2-speed transmission, triple-disc brakes, aluminum shocks with 3.5mm shock shafts and an oversize (290cc) fuel tank. Hitec Aggressor radio gear with metal-gear, high-torque servos complete the big buggy. 07301, \$500

CLICK
TRIP



no.1
most
viewed
at rczone.com

Team Losi JRX-S

Team Losi's new JRX-S is a totally new design that borrows nothing from the Triple-XS. Nor does it replace the Triple-XS, which is staying in the Losi line as the "club racer." But for pro competition, Losi is banking on the JRX-S. New features include:

- > In-line battery and forward-mounted motor
 - > Optimized short-arm suspension
 - > Integral swaybar mounts and up-/downstops
 - > Diffs can be repositioned up/down and fore/aft for CG and belt adjustment
 - > Adjustable roll center, anti-squat, caster and camber
 - > Dual-position shock towers for indoor/outdoor racing
 - > All-new hard-anodized bladder shocks
 - > Ti-nitride shock shafts and hinge pins
 - > MIP aluminum CVDs
 - > Titanium turnbuckle tie rods and camber links
 - > Includes Skoda body and 24mm wheels
- LOSA0255, \$350 [list price]



ZONE
FAVORITE

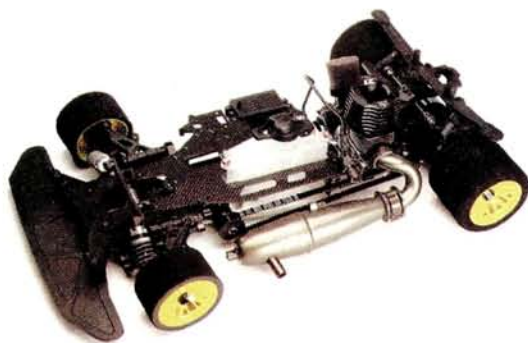
TECH
BREAKTHROUGH

CLICK
TRIP



Team Orion Method & Method R Motors

The Method and Method R motors are Team Orion's least expensive, but they aren't short of features. The motors feature Sport V2 (SV2) technology with angled cylindrical brushes. The Method has a fixed endbell; the "R" version's is removable and adjustable. Various item nos., \$25 to \$30



Power Racing XR8

Power Racing plans to release the XR8 first as a pro kit and then as an Airtronics MX-3-equipped RTR. The kit has many pro features: graphite upper deck and shock towers, 7075 chassis and gears, Centax-type clutch, quick-change axles, one-way front axle, clutch-type 2-speed and more. XR8, \$399



GS Vision RTR

The Vision RTR is full of Vision Pro stuff, and features a 3mm 6061 T6 chassis, full bearings, 75cc fuel tank with spill tray, fully adjustable pivot-ball suspension, threaded shocks and a 2-speed transmission.

GS-410412B, \$280

OFNA Hyper GPX

The Hyper GPX is OFNA's latest pro-level touring chassis and the first to carry the Hyper badge. According to OFNA, the triple-belt 4WD system features a super-low-CG design and is ultra-efficient. Its other features are a completely adjustable pivot-ball suspension, center-point steering, threaded-body shocks, blade-type swaybars, a graphite upper deck and bumper mount and much more.

Expect to see an RTR version

of the GPX soon.

Item no. and price to be announced



Horizon Hobby Spektrum DSM Module

The Spektrum Digital Spectrum Modulation system replaces your transmitter module and receiver. As soon as you switch it on, the system automatically finds and sets itself to a free channel (out of 79 possible channels). No more waiting for an open frequency or swapping crystals! According to Horizon, the DSM is impervious to all types of interference, including other radio systems, model-generated interference and interference from pagers, cell phones, etc. Current compatible radios include the Airtronics M8, JR R1, Futaba 3PK, Hitec Aggressor CRX and KO Helios.

Item no. and price to be announced



TECH
BREAKTHROUGH
ZONE
FAVORITE

Traxxas Revo

The Revo has been out for quite a while, but it's still Traxxas' biggest release for 2005! Never heard of it? Well, welcome to our planet, Gorak! The RTR Revo has F1-style inboard shocks, a monocoque-style chassis, an Optidrive electronically controlled reverse system and a TRX 2.5R engine with a machined heat-sink head and electric starting. Traxxas even includes a rechargeable receiver pack and charger!

5310, \$500





Pro-Line Racing Crowd Pleazer 2.0 for Traxxas Revo

The new Crowd Pleazer 2.0 for the Revo incorporates the functionality of the stock body while enhancing overall performance. The Pleazer profile is pulled from super-thick 0.060-inch Lexan, so it's able to take a beating, and it comes with window mask, decals and overspray film.

3187-00, \$30

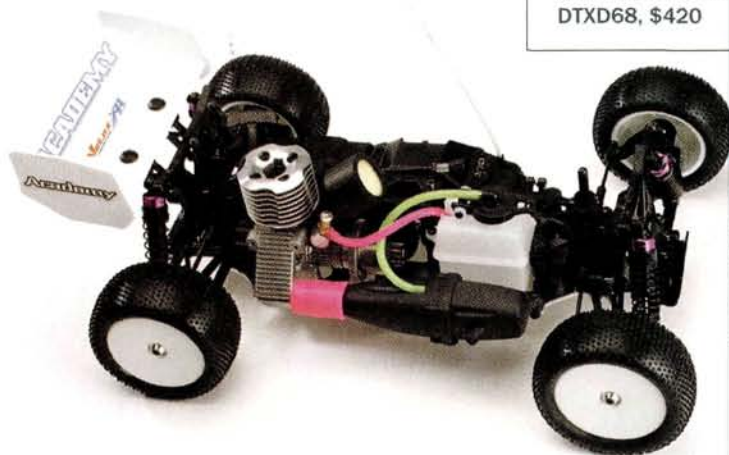


CLICK
TRIP

DuraTrax Warhead

The new DuraTrax Warhead RTR includes a powerful .27 engine, 250cc fuel tank, high-torque servos, aluminum shocks and tuned pipe, disc brakes, CV driveshafts and a 3-channel Futaba-built radio system. A DVD with tips on engine tuning and prepping the truck is also included.

DTXD68, \$420



MRC/Academy Velox XB GP RTR

Academy's popular SB buggy goes gas with the Velox XB! It has the same suspension as the SB, but it brings .15 pull-start power to the mix. Shaft drive and a fully enclosed radio box make the Velox XB off-road-ready, and 4WD means major traction. A molded wing, painted body and Futaba radio gear are standard.

15980, \$289



LRP/Reedy Sphere speed control & Reedy NEO-One combo

Incredible! The Sphere is a programmable, sensor-based brushless motor speed control that can also be used with conventional brushed motors! See page 218 for our exclusive review of the new LRP/Reedy system.

Sphere speed control—80500, \$200

Reedy brushless motor—111, \$100

TECH
BREAKTHROUGH
ZONE
FAVORITE

Kyosho FW05T RTR

Sweet! Kyosho's new ready-to-run nitro tourer is based on the FW-05R competition kit car (which, by the way, won the nitro touring shootout in the 2004 edition of RC Touring Cars special!). The "T" version is fully upgradeable to "R" racing specs, and it looks great straight outta the box with its sharp BMW shell.

Item no. and price to be announced



Trinity Revolution .28

Looking to bolt some major big-block power into your Traxxas Revo? Trinity now offers this direct-fit Trinity .28 engine. It comes with a plug, manifold, top-loading EZ crank starter and all the necessary mounting hardware. An optional high-power exhaust system is available (TRI42016). TRI40000, \$325 [list price]

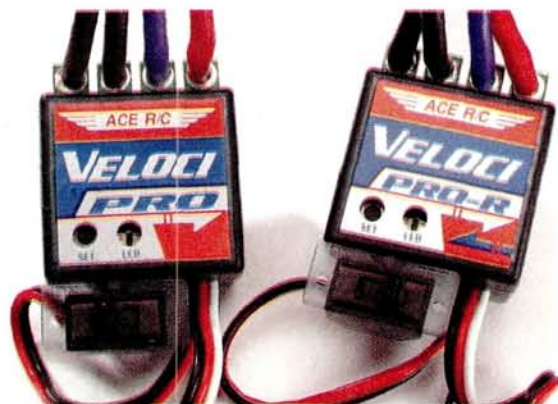
ZONE
FAVORITE



CLICK
TRIP**DuraTrax Mini Quake**

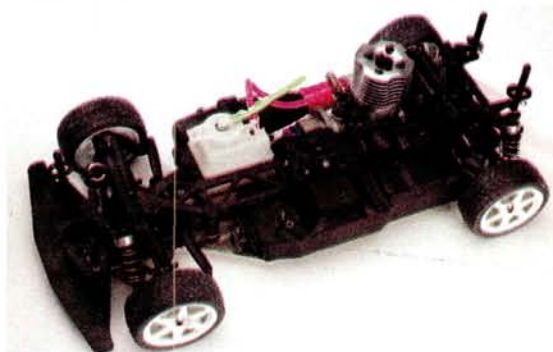
The Mini Quake is the largest of the new RTR mini-monsters, and it's one of the best-equipped: aluminum shocks, Futaba radio gear, 380 motor, and a rechargeable battery with charger are all part of the deal.

DTXD11, \$200

**Ace Veloci speed controls**

Ace's new Veloci speed-control line includes compact Veloci, Veloci Pro, Veloci R, Veloci Pro-R and Veloci Comp forward-only and reversing models to suit everyone from sport drivers to racers.

Various part nos., \$60-\$120 (estimated)

**MRC/Academy Velox XT GP RTR**

Academy's nitro tourer is the perfect parking-lot play machine with features like pebble-proof shaft drive, 2-speed transmission, ball bearings and a .15 pull-start engine with machined head. Futaba radio gear and a painted body are standard.

15970, \$299

**Team Orion Supercharge 1400 Micro Pack**

Team Orion's 1400mAh pack uses high-quality cells and a standard micro plug, for high-speed, high-endurance mini-truck racing.

ORI13023, \$46

**Phantom FR18 for Revo & T-Maxx**

Fantom's .18 drops right into your Traxxas and includes a header for the Revo. A knife-edged conrod, teardrop sleeve porting, 2-piece button head and EZ-Start rear plate are standard.

FAN01024, \$149

**DuraTrax IntelliPeak Ice DC competition computerized charger, discharger & cycler**

The new IntelliPeak Ice offers four charge modes: linear, reflex, impulse and DuraTrax's unique "four-step." It handles 1 to 10 NiCd or NiMH cells and 1 to 4 lithium-ion or lithium-polymer cells. You can program and name up to 10 charge profiles for easy recall and setup, and the Ice can also be used to break in electric motors and operate comm lathes.

DTXP4170, \$140

**Thunder Tiger ZK-2 & ZT-2**

Thunder Tiger enters the expanding 1/18-scale truck class with these new 2WD monster and stadium trucks. They feature fully independent suspension, replaceable servos, 280-size stock motors (which can be upgraded to 380 or larger motors), a 4-cell rechargeable battery and an AC charger. The radio gear is good stuff: you get a PCM/FM 2-channel Ace system with ESC. Optional 5- or 6-cell NiMH power packs are also available.

Item nos. and prices to be announced

**Tamiya Leopard 2 A6 Main Battle Tank**

Even at 1/16 scale, this thing is huge! The turret rotates 360 degrees in 9 seconds (like the full-size tank's), the gun barrel recoils and "reloads" after firing its strobe-light muzzle flash, and all the sound effects are "real." The sounds of engine start-up, shut-down, speed-sensitive engine rpm, cannon blast, etc., were all digitally captured from a 1:1 Leopard.

56020, \$1,500 [list price]

HOT NEW NOW



FG MT-5

This big-rig's Zenoah G230 gasoline engine gets it moving in a hurry, and strong disc brakes slow it down. Big, oil-filled shocks smooth out the ride, and a good-looking lexan Ford F-150 truck body covers the chassis.

6007, \$1210

TECH BREAKTHROUGH



Eagle Tree Systems Seagull Telemetry System

Eagle Tree Systems now offers a package deal that includes the Seagull—a wireless telemetry system that receives data from an included transmitter installed on your car. The components are also available separately.

Item nos. and prices to be announced



Extreme Standz Ps Extreme Body Stand

The Ps Extreme's articulated arms and soft rubber "fingers" hold any RC body for painting and detailing, and it's built to last with stainless steel and high-impact plastic construction. Get one and quit painting your fingers!

1103, \$37

Du-Bro Racing EZ Glo

We love this thing. Press the EZ Glo's "test" button, and it beeps to confirm the glow plug is good. No beep, no good. The EZ Glo includes a 1700mAh battery and charger.

927, \$25



TECH BREAKTHROUGH

MONSTER STAND

MONSTER

LIGHT WEIGHT, IMPACT & FUEL RESISTANT COMPOSITE
ADJUSTABLE WIDTH & LENGTH
REMOVABLE FEET TO ADJUST HEIGHT
FITS

1/8TH MONSTER TRUCKS, 1/8TH OFF-ROAD BUGGIES
1/10TH RACING TRUCKS, 1/10TH BUGGIES
1/10TH TOURING

TRI30008, \$39.99

TRINITY

Trinity Products Inc.
36 Meridian Road
Edison, NJ, 08820, USA
732.635.1600
www.teamtrinity.com

Trinity Smart Starter

Trinity's shaft-starter has a spring-loaded lid to protect the starter button and an internal pump to transfer fuel from bottle to fuel tank.

TRI42014, \$80 [list price]



CLICK
TRIP

Ace Super Torque digital servos

Ace offers a pair of reasonably priced Super Torque servos. The DS1013 servo has a coreless motor, all-metal gears and 180.5 oz.-in. of torque (with a 0.10-second transit speed at 6 volts). The DS1211 also has a coreless motor and a metal-gear drivetrain with 150 oz.-in. of torque.

Prices to be announced



Tamiya Nitro Thunder XBG

The Nitro Thunder XBG ("eXpert Built Gas") is RTR, and according to Tamiya, the .15-powered 1/10 4WD buggy's power-to-weight ratio is equivalent to a big-block-powered 1/8-scale ride. There are lots of features under the sci-fi-looking body: slide-carb .15 pull-start engine, rear-exhaust system, and universal-joint drive axles with large-diameter ball bearings are just a few of the features.

43514, \$405 [list price]



TRI30010
Jolly Roger Pinion
Gear Holder



TRI70004
Pit/Grave Cover
2 x 4

TRI30011

Jian "The gadget" Salquis
Action Figure

TRI30016, M

TRI30019, L

TRI30020, XL

TRI30021, XXL

Deadman's Shroud

TRI70001

Deadman's
duffle

TRI70002

3 Casket hauler

TRI70003

Radio-Active
Sack

Available Through

Shopatron

www.teamtrinity.com

SKULLZZ™



CEN Racing Genesis Monster Truck

The Genesis debuted in '04, but it's still CEN's biggest (literally) release for '05. It has a .46 ABC engine, 3-speed forward and reverse transmission, fluid-filled differentials, 4 disc brakes, "Dimension X" 10-coil-over-shocks system, precision ball bearings throughout, onboard electronic fail-safe and machined-steel spur gears.

NX76, \$500



Hitec HSC digital servos

Hitec's new digital, coreless-motor servos are custom-built for competition.

Superstrong titanium gear trains, shorter leads for a cleaner installation and heat-sink cases make these high-quality, high-torque servos race-tough.

HSC-5996TG/5997TG/5998TG, \$120



Schumacher Fusion 2 nitro

The next-gen Fusion .21 nitro sedan has a better-sealed belt drivetrain and can top 80mph with an optional high-speed gear set, says Schumacher. It's available in kit and RTR versions with your choice of BMW M3, Subaru Impreza Rally, F155 Truck and Nissan Skyline GTR bodies.

Item nos. and prices to be announced



Parma X-Citer body for Traxxas Revo

Swoopy fenders, a prominent hood bulge and roll-cage "sails" will set your Revo apart from the rest. The X-Citer is molded in crystal-clear 0.050-inch Lexan to look cool and last long. Includes decals and window masks.

10209, \$32



Tekin Electronics BC 112C

Tekin's top charger is back and has been updated for the latest NiMH cells. All your favorite features are back, including three charge profiles, adjustable amp rate (up to 10 amps) and an LCD that shows volts, amps, time, charge capacity and peak voltage. Can't beat that "cold start" function!

TEK112C, \$190



GS Racing Avenger Storm MKII

The newest addition to the GS Racing buggy has strong 3.5mm shock shafts, modular low-rotating-mass diffs, captured lower hinge pin system and a 25-percent-lower center of gravity for improved handling.

GS-3000, \$510



CEN Racing NT 3.0 engine

CEN's new pull-start .18 features a machined, blue-anodized aluminum head, rotary carb, ABC construction and a standard threaded shaft. G70356, \$170 [list price]



Reedy Ti Modified Worlds Edition

Reedy is looking for yet another IFMAR World win with this new hybrid motor that combines the proven Ti-series can with the latest Kr-series endbell and armature. Precision epoxy-balancing, hand-wound arms, dual-magnet can, mid-size com and lay-down brushes add up to major power.

Item no. varies with wind, \$95

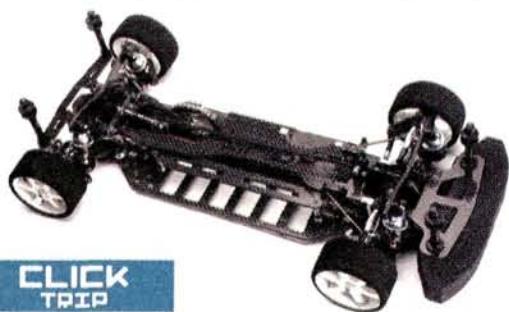
Team Losi Mini-T Pro

Team Losi now offers the popular Mini-T minus radio but with all the options: ball bearings, hard-anodized shocks, titanium links, high-output Speed motor, slipper clutch, one-piece aluminum gear shaft, ball differential, MIP CVDs and more. All under a new body!

LOS0210, \$150



**ZONE
FAVORITE**



**CLICK
TRIP**

Team Corally RDX

With its narrowed, ultralow-CG chassis, low-friction 2-belt drivetrain, new in-front-of-the-arms rear shocks and 7mm-longer wheelbase, the RDX out-handles and out-sprints the Assassin. It's also available specially tweaked for carpet racing with 4-degree caster blocks, extra-hard reinforced short suspension arms and extra-stiff silver springs.

0016 (standard RDX), 00167 (carpet version), \$350

**HPI Racing
Savage 3-speed
transmission**

Here's a good look at HPI's new 3-speed in a cutaway Savage gearbox. It's reverse-compatible, fits all Savages, and splits the stock ratios so you get more low-end punch and more top speed.

Item no. and price to be announced

**DuraTrax FireHammer RTR**

Go big! The FireHammer 2WD 1/5-scale buggy rides on a rugged 4mm aluminum chassis, and its DTX 23cc engine runs on regular gasoline for run times of over half an hour. Futaba-built radio gear keeps you in control. LXGMP7, \$900

**Trinity
Aluminum upgrades for Traxxas Revo**

Revo hop-up mania has begun! Trinity now offers these bright blue-anodized parts for the popular Traxxas truck—everything from skull bumpers and suspension arms to shock mounts and tuning springs.

Item nos. and prices to be announced

**Hudy Exclusive Set-Up
System**

Hudy's new Set-Up System with integrated Tweak Station includes all the tools needed for complete suspension adjustment, and it fits any 1/10 nitro and electric touring car. You get a droop gauge and blocks, a ride-height gauge, setup board with decals and a 56-page setup guide. And yes, it comes with the trick aluminum case!

XRA108255, price to be announced

**DuraTrax Street Force GP2 RTR**

DuraTrax's new Street Force GP2 has a powerful .18ci engine designed by O.S. plus improved suspension geometry and a stiffer chassis. Pro-Line Road Rage tires mounted on chrome Wabash wheels are standard, and a new body updates the look. Available RTR and assembled without running gear.

RTR—LXEHW8, \$270

Prebuilt—LXEHW7, \$200

OFNA Blazer SST

The Blazer SST's long-wheelbase chassis and extra-long suspension arms give it a wide, long footprint that improves its handling over the rough stuff. Stadium- and monster-style mounted tires are included, and a large 135cc fuel tank provides long run times. Threaded-aluminum shocks, sealed diffs, front universals and a quad disc-brake system are standard, and the Blazer is totally RTR.

34953, \$400

**Magma APS Dyno Charge**

The Dyno Charge does it all. It's a 1- to 8-cell DC charger with delta- and temperature-peak charge modes and 5 programmable charge profiles; a motor dyno with 10 spin-up speeds and memory for 5 motor runs; and motor break-in machine with adjustable break-in time and 10 break-in pulse speeds.

APS3309, \$250 [list price]

**Team Losi Triple-XNT Sport II**

Team Losi's updated Sport offers more performance with an all-new, rear-exhaust Mach .15 engine and a tuned exhaust system. Other new features include chrome wheels, a brightly trimmed Fury-NT truck body and Team Losi's Spin-Start remote starter system. A JR XR2i radio system is standard, too, and it's a big step up from no-frills radios. Prefer electric? Losi has made similar mods to the Triple-XT Sport II.

LOSA0887, \$350

**LRP Quantum Micro Reverse A.I.**

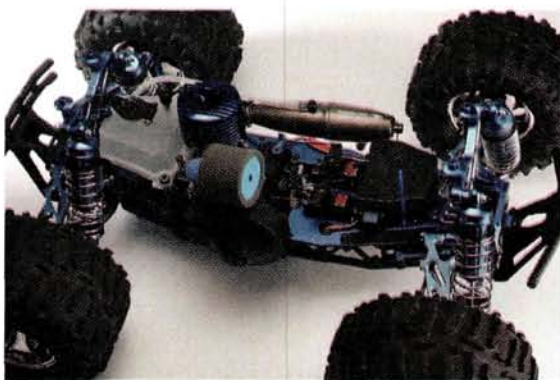
All of LRP's speedos feature automatic setup—just plug in and go; no setup, no switch! The new Quantum Micro A.I. can run any micro motor and has a built-in fail-safe. And it's waterproof! LRP84057, price to be announced

Peak Diablo .28 engine

Peak's Diablo has a chrome sleeve, race-ported crank, 8mm aluminum slide carburetor, 3 transfer ports, a 2-piece replaceable button-style turbo head and an 11-fin cooling head. Claimed horsepower: 2.85!

PEK6080, \$270

PEK6081 (w/pull-start), \$280 [list price]

**Dynamite Aluminum upgrades for Team Losi LST**

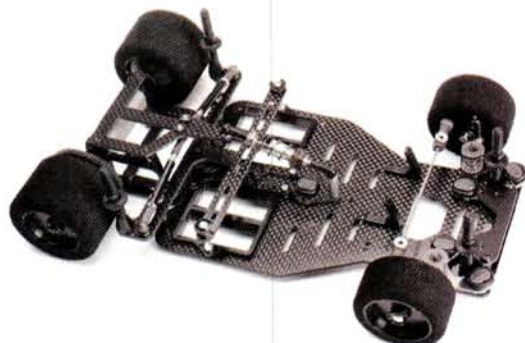
Dynamite now offers a complete line of aluminum hop-up parts for Team Losi's LST—everything from shock towers and suspension arms to chassis plates and shock bushings. You name it; Dynamite probably has it! The parts are available in red- and blue-anodized finishes.

Various item nos., \$13 to \$76

Team Corally SP12M Ahoniemi Edition

Corally has always been a force in 1/12 scale, and the latest SP12M should carry on that rep. Aluminum front wishbones, lower roll center, damper tube/micro-shock rear suspension and fiberglass T-bar with adjustable tweak are standard.

00058; \$250





MRC/Academy SB Pro

Academy's popular SB buggy gets the full graphite treatment as the SB Pro, and it's decked out with a machined-aluminum motor mount and hinge pin blocks, full turnbuckles, threaded-aluminum-body shocks, CV-style axles, ball differentials, carbon drive-shaft and more.

\$250

Tsai's Side-exhaust Pipes

We love the look of Tsai's side-exhaust smoke-stacks, but these aren't just style pieces; they're seamless, high-performance, dual-chamber pipes! They are available in right and left exhaust configurations for $\frac{1}{8}$ buggies, monster trucks and more. Lots of styles available in chrome, black-chrome and polished finishes, and get ready for a dual-top Revo setup soon!

Various item nos., \$60



Thunder Tiger SSK Version 2

Thunder Tiger's SSK revamp gets a metal-gear steering servo, Pro 18BXS pull-start engine and new, stronger bulkheads and 8.5mm shock towers. Cast-alloy steering knuckles, long-travel oil shocks and front universals are in there, too—and it's RTR.

Item no. and price to be announced



Novak Electronics GTX

Novak's GTX speed control is its smallest and lightest to date. It has classic Novak stuff, including One-Touch Set-Up, Polar Drive circuitry, Radio Priority circuitry and Digital Anti-Glitch circuitry. Six factory throttle programs and a fully customizable seventh program make it easy to setup the GTX for any car and track.

1780, \$160



Fantom FR-series engines

Fantom has totally redesigned its big-block racing engines' internals. The new FR21 and FR27 engines feature new porting, a redesigned crank and a stronger conrod. The FR12 and FR15 small-blocks feature 3 intake ports for crisp acceleration, new turbo heads, knife-edged double-bushed conrods and 5.5mm aluminum-body carbs.

Various item nos., \$139 to \$149



New Era Models Upgrades for Traxxas Revo & Losi LST

New Era offers a complete line of hop-ups for the Traxxas Revo, including control arms, big-block conversions, skidplates, bumpers, shock caps and more. Lots of LST parts too, all in high-quality machined aluminum. Tubular-steel roll cages also available. Various item nos. and prices.

Traxxas Big-block conversion for the Revo

If you just gotta have a big-block, Traxxas now offers a conversion for the Revo. Just add your bump-start engine (this one's an O.S.). Sorry, pull-start engines won't fit.

Item no. and price to be announced

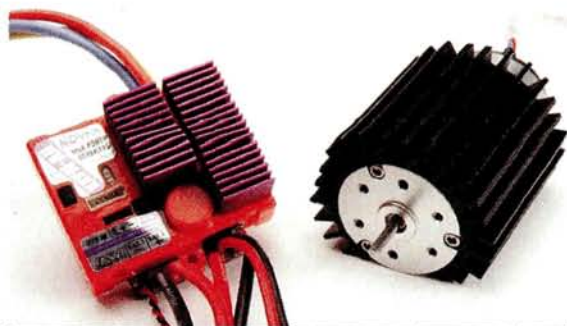


ZONE FAVORITE

New Era Models Ultra Lite $\frac{1}{8}$ Funny Car

New Era's latest strip missile is 26 percent lighter than New Era's original $\frac{1}{8}$ Funny Car and accepts a .21 to .28 engine. The kit is also available in $\frac{1}{10}$ - and $\frac{1}{8}$ -scale Pro Stock and Pro Truck configurations.

NFC202, \$310 [list price]



Novak Electronics HV-Maxx brushless motor system

Novak is just about ready to release the big-volt HV setup, and it claims the new system provides high-performance operation and longer run times than a pair of brushed motors yet is virtually maintenance-free. It's also a drop-in replacement for the EVX speed control in the E-Maxx. Get the hint? 3020, \$300



Tamiya Rising Storm

Tamiya's nearly indestructible DF-02 chassis gets a new look! Ball-bearing-supported shaft drive with gear diffs, friction shocks, Expec radio gear, TEU-B01K reversing ESC and 540 power are standard with the RTR version. The clear-body kit includes a 540 motor, oil shocks and the ESC; you supply radio gear. 57731—RTR, \$200
58334—Kit, \$100

O.S. Engines .18TZ competition rear-exhaust small-block

O.S. Engines' new .18TZ has a 5-port sleeve and a 2-piece cylinder head designed for use with a turbo glow plug, and there will be a model with a pull-start, too. The TZ is conservatively rated at 1.8 bhp by O.S., but actual output may exceed 2hp! We'll dyno one soon.

Item no. and price to be announced



Power Racing Raptor RTR monster truck

Power packs a lot into this rig, including a .27 big-block engine, 2-speed steel-gear transmission, metal-gear steering servo, 270cc fuel tank and threaded-aluminum shocks. You even get a color choice: silver or black. \$400



Venom Racing Ray Wood RC DVDs

Venom Racing is bringing in Ray Wood's DVD series, including the 2003 IFMAR 1/8 On-Road World Championship and 2004 Florida WinterNats vids. Along with race action, there's behind-the-scenes stuff, crashes, interviews and more. VEN-RWP018—2003 IFMAR Nitro, \$20
VEN-RWP020—2004 WinterNats, \$20



Peak Griffin & Dragon

Both have cylindrical brushes, anti-vibration spring systems and angled V-brush alignment, but the Dragon has dual ball bearings and a removable endbell. The Griffin is a bushed motor with a fixed endbell. Various item nos., \$36 to \$54



Pro-Line Racing Heavy Duty 40 Series hubs & wheels

Pro-Line's 23mm aluminum hex hubs are 60 percent larger for total indestructibility and greater wheel support. The hexes work exclusively with Pro-Line's new 23mm HD 40 Series wheels. 6033-00—HD hex adapter for Savage, \$17/pair
6034-00—HD hex adapter for Revo, Maxx, Monster GT, TNX, \$17/pair



Panther Molded-foam inserts

Molded-foam inserts rule. You don't have to trim them, they don't break down like open-cell foams, and they fill the tire much better. Panther is on the fast track with molded inserts for 1/8-scale buggy tires and monster rubber, too. 1/8-scale foams, \$12/set of 4
MT foams, \$18/set of 4

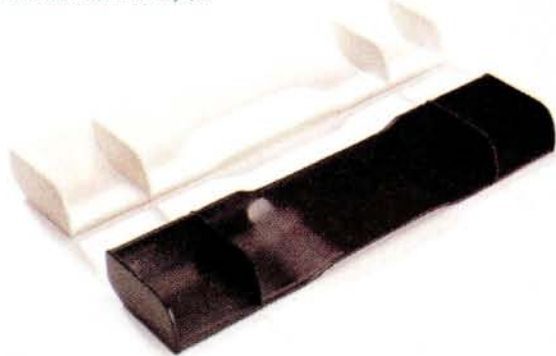
HPI Racing Nitro MT2 18SS

Like HPI's other "SS" kits, the MT2 gets a horsepower boost in DIY form, thanks to a high-output .18SS engine plus some choice upgrades. Hardened diff gears, heavy-duty universals and outdrives, stiffer shock springs, Dirt Bonz Jr. tires, turnbuckle tie rods and camber links and a larger-than-stock, 100cc, fuel tank are all standard. 10441, \$350

**Protoform
Molded wings for touring cars**

Protoform's new molded wings have four side dams to ensure rear-end stability even under the most extreme conditions. Molded in black and white, the wings are light and durable and are available in 190 and 200mm widths.

Various item nos., \$9

**ZONE
FAVORITE****Pro-Line Racing
Moab 40 Series
tire**

The Moab is a whopping 6.9 inches high by 3.9 inches wide, and it has an oversize contact patch combined with an aggressive, realistic tread pattern. The Moabs fit 40 Series wheels and include foam inserts. 1117-00, \$35

**Reedy Mini-Max racing pack & motor**

Mini power just got serious! Reedy's high-voltage GP1100 cells are fully assembled with a connector and are ready to drop into the new Associated RC18T. The Mini-Max mod motor has big-motor features, including replaceable brushes and ball bearings in a 280-size can.

616—battery pack, \$43 [list price]

290—motor, \$45 [list price]

**Tsais
.12 BTR
engines**

Tsais is now in the engine biz with a couple of new powerplants. Both feature true ABC construction, a competition ported crank, a knife-edged conrod, a 5.4mm aluminum slide carb and 9-fin heads.

The bump-start version uses a 3-port sleeve and 12mm crank. The pull-start is a 4-port design with a 10mm crank. Rear-exhaust, SG shaft, ROAR-legal—91201, \$200; w/turbo plug—91202, \$230; rear exhaust, SG shaft, pull-start—91023, \$160

**Thunder Tiger TTR-S3**

Thunder Tiger's new full-race buggy has a ton of features, including front pivot-ball suspension, traditional rear H-arm suspension, graphite upper radio tray and CV axles. The chassis is a solid piece of extruded and machined aluminum

with a stiffening "tunnel"

down the center, so it's extremely rigid.

Item no. and price to be announced

**Schumacher
Menace 21 GTR**

Looking for serious speed? The Menace GTR is based on the Menace truck platform and, according to Schumacher, it hits a top speed of 70mph. The 1/8-scale 4WD car sports a 3-speed tranny and shaft-start .21 engine. Get it RTR or as a rolling chassis minus radio gear.

K048—Assembled w/out radio, \$430

K049—RTR, \$500

OFNA Racing Jammin' X1 RTR

The Jammin X1-RTR is based on the full factory competition racer X1-CR. The RTR version features the same configuration as the CR plus a Force .26 engine with shaft starter, 7075 aluminum shock towers, plastic front and rear chassis braces, cast steering knuckles and an OFNA radio system. \$550

**Team Orion Advantage Charger**

Orion's no-holds-barred Advantage can charge 1 to 8 NiMH and Ni-Cd cells at 1 to 10 amps with linear flex or "step" charging, stores 5 charge profiles, cycles packs and can power motors for break-in or to run comm lathes. A backlit LCD keeps you informed. 30115, \$275

Team Losi Triple-XNT Adam Drake 2

Naturally, the Drake truck still has all of Losi's factory upgrades and hard-anodized coolness, but there's lots of new stuff, too. These are just a few of the new features: quick-release rear wheels; extra-strong "VLA+" suspension arms; machined-aluminum rear hubs with vertical ball studs; oversize rear-axle bearings; Cross Bones universal driveshafts; machined and lightened chassis; hard-coated, one-piece aluminum top shaft. LOSA0846, \$350



ZONE
FAVORITE

**Serpent USA Mega Racing Engines**

In cooperation with Picco of Italy, Serpent has developed a line of affordable high-performance engines in .12 on-road, .15 small-block, .21 on-road, .21 off-road and .26 monster-truck versions. Meg 201000 to 201601, \$195 to \$325 (list prices)

**Venom Racing Micro temperature monitor**

Venom's newest onboard gauge is nearly 40 percent smaller than the previous model, and you even get a choice of colors: purple or Venom green. The unit continually monitors your engine or motor's temperature, records peak temperature and displays the numbers in Fahrenheit and Celsius. VEN-0601, \$30

**RPM Monster Spider monster truck wheels**

RPM's split 8-spoke wheels fit the Associated MGT, HPI Savage and Traxxas Maxx trucks. Standard offset and StableMaxx offset versions are available in Chrome and Blue Chrome, and the StableMaxx is also available in dyeable white. Various item nos., \$12 to \$17

**Parma East Coast Modified body for Mini-T**

How about a little East Coast mod style for your Mini-T? Parma captures the folded sheet-metal look in folded Lexan, just for Team Losi's mega-popular mini truck. 10096, \$12.99



XRAY XB8

XRAY's hot new XB8 has a host of top-of-the-line features, including CNC-machined Swiss T6 7075 aluminum chassis, graphite radio tray and front upper deck, Hudy Spring Steel universal-joint driveshafts and a Pro-Line Crowd Pleazer body. XRAY even includes a 1200mAh receiver pack and Hudy ProfiTools hex drivers and screwdriver. See our November '04 issue for the complete review! XRA350000, \$650



SportWerks Hex drivers

Lightweight knurled-aluminum handles and hardened tips give SportWerks' new hex drivers a good feel and high torque, and the plastic case keeps them looking new.

SWK9920, \$23



Team Associated RC18T

The mini-truck wars are raging, and Associated might be dropping the big one! The RC18T brings shaft-driven 4WD plus standard, oil-filled shocks, an 1100 NiMH battery, an electronic speed control and an included charger to the mix. Open the box and rip it up! 20100, \$170



Rossi .28 Monster engine

According to Rossi, the Monster uses ABC construction and has the high-quality materials and precision machining that have been the company's hallmarks for more than 40 years. This rear-exhaust mill fits the same mounts as a standard .21, so it's a drop-in fit for vehicles with a standard big-block.

Item no. and price to be announced



XXX-Main Skull battery brace for B4

Nothing holds a pack like a 3mm graphite skull! The large eye cutouts allow easy access to the pack's solder posts. G002, \$25



XTM Racing X-Cellerator

XTM's new electric version of the X-Cellerator stadium truck comes loaded with a Hitec Aggressor radio gear, an Mtroniks Eco 20 reversing speed control, 3-gear transmission with slipper clutch, threaded-aluminum shocks, full bearings and universal-joint axles. 07300, \$200



XXX-Main SKULLator monster truck body

The SKULLator fits Maxx and Savage-size trucks and includes XXX-Main's "How to Paint" DVD for free—a bonus! Full-color decals, vinyl window masks and pre-cut flame paint masks are in the bag, too. \$25 [probable price]

ZONE FAVORITE

Trinity Cobalt

See our "Spy Shot" look at the Cobalt in the December issue for all the details on Trinity's newest mega-mod. Don't have it handy? Think oversize heat sinks, vibration-damped bearings and brushes, a new turbine-vented can, P-94 Big Brushes and a tuning booklet. Plus, it comes in a cool wooden box! Item no. varies with wind, \$70



ZONE FAVORITE

Tamiya TG10-Mk.2 chassis kit

This new shaft-driven 4WD 200mm chassis features a new layout with a right-side engine, central fuel tank and a lower CG. A 2-speed transmission, racing clutch, TRF aluminum dampers and pivot-ball suspension are also standard. Just add your bump-start rear-exhaust SG shaft engine. 44042, \$518 [list price]

**OFNA Jammin X1 CR**

The Jay-Halsey-designed Jammin X1 CR is loaded with racing features, including a milled-out, hard-coated 3mm chassis, CV axles, threaded-aluminum shocks and aluminum clutch shoes. All of the aluminum components are hard-coated to increase stiffness and scratch-resistance, and there are machined aluminum and graphite parts aplenty. 34960, \$575

**Trinity Skullz Gear**

Trinity's Skullz lineup includes a variety of bags, clothes, and gear—everything from car haulers and transmitter bags to pit pads and our personal favorite, the Jolly Roger Pinion Holder. Various item nos. and prices

**Fantom Jesse Robbers & Ralph Burch Jr. Signature Motors**

Fantom top guns Jesse Robbers (ROAR 2WD Off-Road champ) and Ralph Burch (legendary on-road guy) now have their own signature TOP-based motors with angled-brush technology and precision-machined aluminum endbells. The Robbers motors are factory-tweaked for torque while the Burch motors produce higher rpm for blacktop action. Various item nos., \$59

**Vantage Carbon-fiber tuned pipes**

Yes, they really are carbon fiber. These super-light, dual-chamber pipes fit 1/8 on-road and off-road cars, 1/10 on-road and off-road cars and the HPI Savage, and more styles are on the way. You can get the pipes in one-piece and two-piece configurations. Various item nos., \$70 to \$90

TECH
BREAKTHROUGHZONE
FAVORITE**HPI Racing Nitro RS4 3 .18SS**

Here's the newest kit version of HPI's RS4 3. Like HPI's other "SS" kits, the MT2 has a high-output .18SS engine plus some choice upgrades. Hardened diff gears, heavy-duty outdrives, turnbuckles and a high-flow tubular header are standard. Thanks to revised gearing and 1.5hp, the RS4 3 .18SS is good for over 50mph, says HPI.

Item no. varies w/body style, \$350

**XXX-Main Large-Format External Decals**

Check out XXX-Main's new external decals—Gear Head, Skull Tags, Fully Loaded and Spider Phlames. The decals are printed on super-flexible vinyl for a wrinkle-free fit.

Various item nos., \$7



XRAY M18T

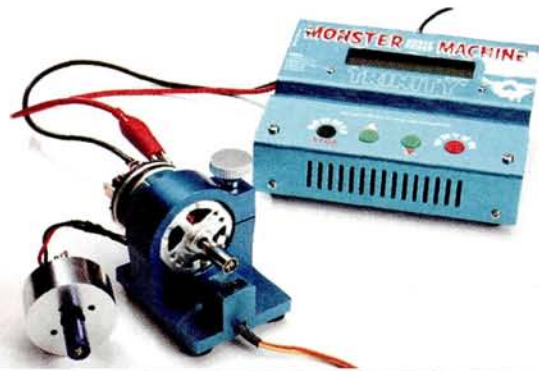
XRAY has truck-ified the M18 to create the 4WD M18T, so it's loaded with good stuff. Shaft drive, oil shocks, adjustable suspension and gear diffs are stock. Not into the stadium stance? An accessory kit lets you jack up the M18T monster-style. Item no. and price to be announced

**ZONE
FAVORITE**



Team Losi Triple-XS Sport II

Team Losi's tourer gets a little tweakin' just like the Triple-XT Sport II. Upgrades include a JR Z-590 high-torque steering servo, Novak-built Sport ESC, Trinity 19T motor, chrome wheels, factory-finished Alfa body, MIP CVDs and JR XR2i radio gear. LOSA0285, \$270



Trinity Monster Horsepower Machine

This do-all device can break in, condition and test all your standard and 1/18-scale mini motors, from stock all the way up to 8-turn mods. AutoRun, Motor Run-In and programmable Condition Run-In modes make it easy to dial-in, break-in, tune and rate your motors.

TRI30009, \$250



Trinity SpeedGem Extreme

The latest in Trinity's popular Gem line combines a D6 can and endbell with Trinity's FB-9 4-magnet system, dual ball bearings and pure-copper brush hoods with dampers. Three installed capacitors, no-solder leads, a diamond-trued commutator and an epoxy-balanced armature are standard, and Trinity dynos and tweaks each motor for max performance. Item nos. vary with wind, \$45



Tekin Electronics G-10 Pro Digital ESC

The G-10 is back and built with new, high-performance GoldFET III-b transistors. It's fully programmable through the Quicktune setup button, operates on 4 to 7 cells and has a built-in Schottky diode and digital glitch filter. Time warp!

TEK1420, \$130

SOURCES

- ACE HOBBY DISTRIBUTORS INC.** (949) 833-0088; acehobby.com.
CEN RACING (714) 792-1923; cenracing.com.
DU-BRO PRODUCTS (800) 848-9411; dubro.com.
DURATRAX distributed by Great Planes Model Distributors; duratrax.com.
EAGLE TREE SYSTEMS (425) 614-0450; eagletreesystems.com.
EXTREME STANDZ (435) 513-4300; extremestandz.com.
FANTOM RACING (269) 649-9583; fantomracing.com
FG distributed by VS Modelsports.
FUTABA distributed exclusively by Great Planes Model Distributors Co.; futaba-rc.com.
GREAT PLANES MODEL DISTRIBUTORS (217) 398-6300; (800) 682-8948; greatplanes.com.
GS RACING distributed exclusively by General Silicones Group (626) 338-3815; gsracing.com.
HITEC RCD INC. (858) 748-6948; hitecrd.com.
HORIZON HOBBY INC. (800) 338-4639; horizonhobby.com.
HPI RACING (949) 753-1099; hpiracing.com.
HUDY SPECIAL PRODUCTS distributed by RC America (214) 744-2400; hudy.net.
KYOSHO distributed by Great Planes Model Distributors; kyosho.com.
LRP distributed by Team Associated.
MAGMA INTL. (905) 886-1808; magmarc.com.
MODEL RECTIFIER CORP. (732) 225-2100; modelrectifier.com.
NEW ERA MODELS (603) 888-4453; neweramodels.com.
NOVAK ELECTRONICS INC., (949) 833-8873; teamnovak.com.
OFNA RACING (949) 586-2910; ofna.com.
O.S. ENGINES distributed by Great Planes Model Distributors; osengines.com.
PANTHER PRODUCTS INC. (866) 700-8473; panthertire.com.
POWER RACING RC (408) 988-1188; powerracingrc.com.
PRO-LINE (909) 849-9781; pro-lineracing.com.
PROTOFORM INC. distributed by Pro-Line.
REEDY a division of Team Associated.
ROSSI distributed by Trinity Products Inc.
RPM R/C PRODUCTS (909) 393-0366; rpmrcproducts.com.
SCHUMACHER USA (813) 889-9691; racing-cars.com.
SERPENT INC. USA (305) 639-9665; serpent.com.
SPEEDMIND distributed by Magma Intl. Ltd. (905) 886-1808; speedmind.ca.
TAMIYA AMERICA INC. (800) 826-4922; tamiausa.com.
TEAM ASSOCIATED (714) 850-9342; teamassociated.com; rc10.com.
TEAM LOSI distributed by Horizon Hobby Inc; teamlosi.com.
TEKIN ELECTRONICS (208) 634-5559; teamtekin.com.
THUNDER TIGER/ACE HOBBY DISTRIBUTORS (949) 833-0088; thundertiger.com.
TRAXXAS CORP. (972) 265-8000; traxxas.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.
TSAIS distributed by RCHub.com (816) 224-2070; tsais.com.
VANTAGE; vantageracing.com.
VENOM RACING (800) 705-0620; venom-racing.com.
VS MODELSPORTS vsmodelsport.com.
XRAY distributed by RC America (214) 744-2400; teamxray.com.
XTM RACING distributed by Global Hobby Distributors (714) 964-0827; xtm.globalhobby.com.
XXX-MAIN RACING (877) 744-6793; xxxmain.com.

firstdrive >>>

EXCLUSIVE

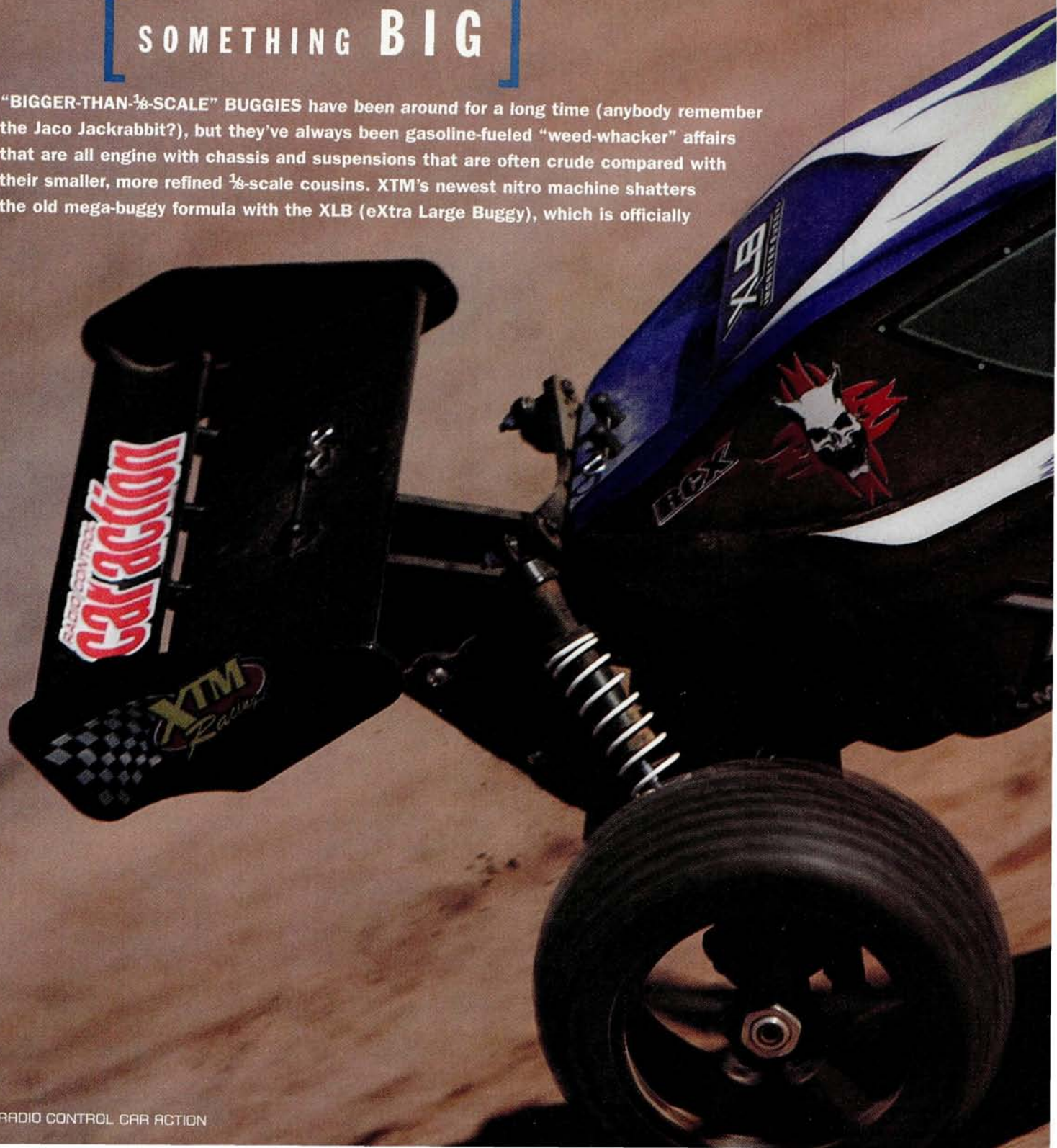
XTM Racing

by Craig Bianco

XLB

[SOMETHING BIG]

"BIGGER-THAN- $\frac{1}{8}$ -SCALE" BUGGIES have been around for a long time (anybody remember the Jaco Jackrabbit?), but they've always been gasoline-fueled "weed-whacker" affairs that are all engine with chassis and suspensions that are often crude compared with their smaller, more refined $\frac{1}{8}$ -scale cousins. XTM's newest nitro machine shatters the old mega-buggy formula with the XLB (eXtra Large Buggy), which is officially





pegged "1/7 scale" but seems much larger. It's undeniably big, but it's built like an overgrown 1/8 buggy and powered by a regular 2-stroke nitro engine—albeit a very powerful .28 model. So, you get all the wow-factor of a mega-size off-road machine with proven RC tech that we're all familiar with, and XTM is going to sell it ready to run! Sounds like fun to me; I got the first crack at XTM's pre-production test buggy.



Here's the XLB with an 1/8 buggy, but this pic doesn't really do the XLB's size justice; it's big!

PHOTOS BY PETE HALL AND DERON NEBLETT

FEATURES

1 ALUMINUM CHASSIS. The XLB chassis is 3mm thick like most other buggies, but it's much longer. The sides are radiused for extra stiffness, and four rod braces support the gearboxes and center diff mounts. The aluminum radio tray and its standoffs lend additional support, and plastic side guards help deflect dirt and rocks away from the interior of the body.

2 EXTRA-LARGE REAR WING AND SUPPORT. The dual-surface rear wing is nearly 10 inches wide, and it's held in place by an extra-long body clip. The massive wing support on our test vehicle is a hand-machined Delrin prototype; the production version will be injection molded.

3 ALUMINUM STEERING KNUCKLES. Standard 1/8 buggy stuff here, so you know it works. The aluminum knuckles are well proven in the X-Terminator series. The suspension arms are also X-Terminator-like with their turnbuckle-equipped, reverse-wishbone upper arms, but they're longer pieces lifted from the Mammoth monster truck.

4 2-SPEED TRANSMISSION. Instead of a center differential, the XLB has a pawl-type 2-speed transmission. The gear ratios are the same as the XTM Mammoth's, which gives the big buggy plenty of punch. The gears are so large they would rub the chassis if there weren't an opening for them to hang

through, but don't worry about durability—a plastic skidplate protects the gears from damage. The gears are also extra thick; this should make up for their being plastic instead of steel. We'll keep an eye on them during testing.

5 TRIPLE DISC BRAKES. Padded steel calipers grab a trio of vented-steel rotors to stop the XLB. The brake system is split with two front rotors and one rear, but since there's no center differential, all three rotors provide braking power to all four wheels. If XTM offers a center-diff option for the XLB, the stock braking system will let you adjust brake bias.

6 SH .28 ENGINE. The XLB's extra size and heft makes it a natural for big power, and XTM obliges with an all-new .28 powerplant from SH. It features a chrome-plated brass sleeve for durability, and an aluminum-body, 2-needle slide carburetor for complete mixture control. The engine's machined 9-fin head has a black crinkle finish for maximum heat dissipation, and SH claims 3.5 horsepower at 28,000 rpm. Yikes!

7 OVERSIZED TUNED PIPE. It doesn't look especially big compared to the rest of the XLB, but the pipe is in fact bigger than a typical .21 design. A high-output .28 breathes heavier, so a bigger pipe makes sense.

8 290CC FUEL TANK. The XLB's 290cc fuel tank is the

largest we've seen in a glow-powered car. It holds nearly 10 ounces of fuel! There's a stone-type filter inside the tank, and an external in-line filter is an option. The tank is primerless, so air leaks won't be an issue.

9 THREADED ALUMINUM SHOCKS. The XLB's shocks are the same diameter as typical 1/8 scale units, but they're backyard-basher abuse in mind. The shocks have threaded bodies for no-clip preload adjustment and 3.5mm shafts for increased durability.

10 ROOMY RADIO BOX. No self-respecting buggy would leave all its electronic gear hanging out in the breeze, and the XLB is no exception. The large radio box holds a 4-cell battery holder, Hitec receiver and an XTM fail-safe. Getting to the gear is easy thanks to a snap-on lid. For quick access, the fail safe will be mounted outside the radio box on production XLBs.

11 6-GEAR PLANETARY DIFFS. The XLB's differentials use all-new housings with rugged planetary gears instead of the usual bevel type, and they're easier to remove from the XLB than they are in the X-Terminator series buggies.

12 ELECTRONIC FAIL-SAFE. A fail-safe is a welcome touch on any nitro vehicle, but especially one as big and powerful as the XLB. The supplied unit is barely larger than a servo plug, but it works; if the receiver

loses the signal or encounters interference, it automatically applies full brake to stop the XLB. The fail-safe should be factory-set, but if you need to re-set it, it's easy. Just power up the radio gear, hold full brake, and push the fail-safe's "set" button. That's all there is to it.

13 ADJUSTABLE SERVO-SAVER. An adjustable servo-saver is a welcome addition to the XLB, and for once, there's actually enough room to turn the adjustment wheel (it's nearly impossible on most 1/8-scale buggies). XTM also scores points for spec'ing a turnbuckle linkage between the servo and steering bellcranks. In fact, all of the XLB's suspension and steering links are turnbuckles for total adjustability.

14 SUPER-SIZE WHEELS AND TIRES. Good-looking 5-spoke wheels and studded tires with foam inserts give the XLB good all-terrain traction, and at 94mm in diameter, they're nearly monster-truck sized (but well proportioned to the 1/7-scale buggy shell). The wheels are fitted to 17mm aluminum drive hexes, so the XLB can wear standard buggy wheels (which would look weird) or any monster truck wheel designed to fit a 17mm hex (which might look cool).



SPECS

MANUFACTURER XTM Racing
MODEL XLB
DISTRIBUTED BY Global Hobby Distributors
SCALE 1/10
PRICE \$500 (estimated)

DIMENSIONS

Wheelbase 16.42 in. (417mm)
Width 15.74 in. (400mm)

WEIGHT

Total, as equipped 10.6 lb. (4.8kg)

CHASSIS

Type Stamped plate with front kick-up
Material 3mm dark-anodized aluminum

DRIVETRAIN

Type Shaft-drive 4WD
Primary 14T/19T clutch bell,
60T/65T spur gear
Transmission ratio 3.31:1
Final drive ratio 15.36:1 (1st gear),
10.46:1 (2nd gear)
Driveshafts Steel dogbones with
steel front universals
Differentials Sealed, 4-gear bevel
Bearing type Rubber-sealed
ball bearings

SUSPENSION

Type Lower H-arm with adjustable
upper wishbone
Shocks Threaded, aluminum-body
with 3.5mm shafts

WHEELS

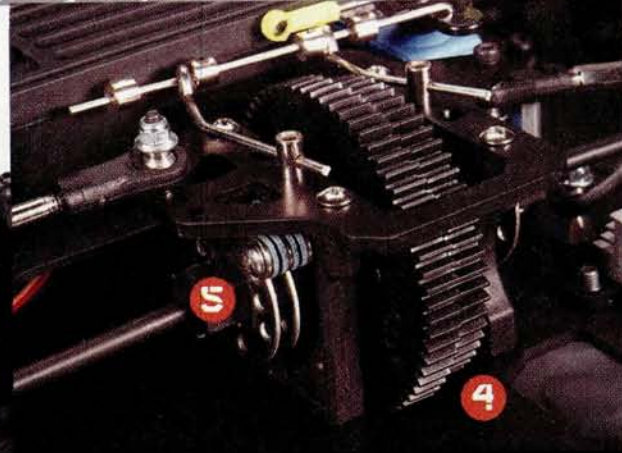
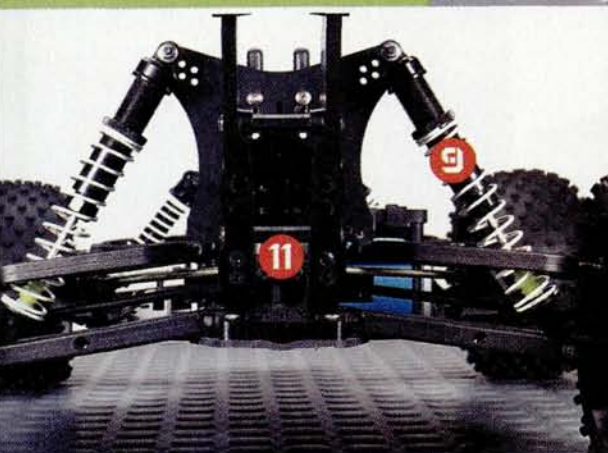
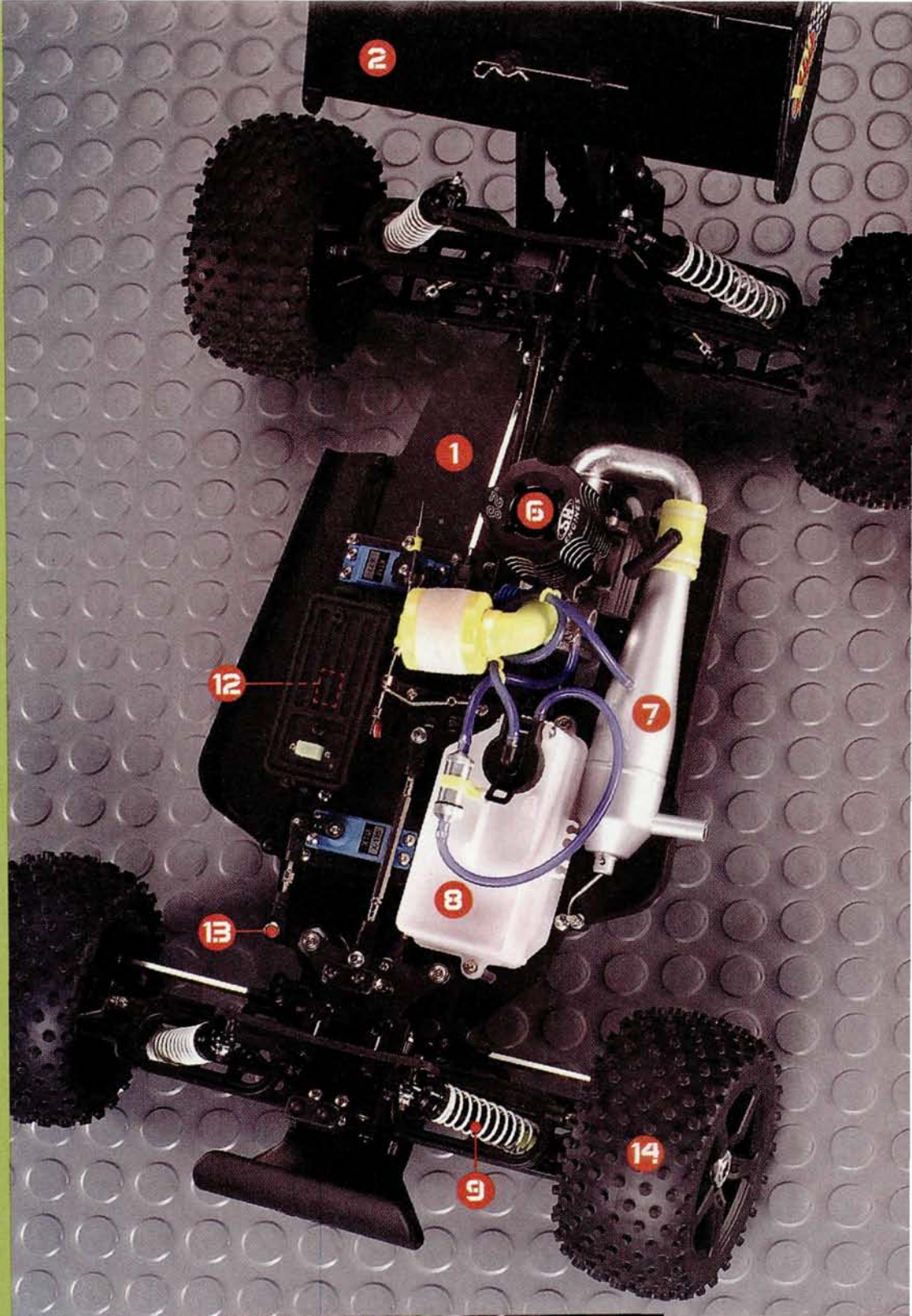
Type 5-spoke, one-piece
Dimensions 3.79x2.5 in.
(94x64mm)

TIRES

Type Stud-pattern knobby,
medium-compound
Dimensions 5.5x2.6 in.
(140x65mm)

ENGINE AND ACCESSORIES

Engine .28 pull-start
Carburetor 2-needle, slide valve
Pipe Aluminum, one-piece tuned pipe
Fuel tank 290cc



WE DRIVE IT!

FASTER THAN YOU THINK!

One good squeeze of the Hitec Agressor's trigger, and the XLB is up and gone in a hurry. The XTM's .28 engine supplies gobs of low-end torque, and the XLB isn't heavy for its size, so it was much quicker than I expected. The clutch stood up to dozens of NHRA-style launches. As I tuned the engine for maximum performance, it engaged with authority every time. The centrifugal 2-speed transmission coupled with the generous torque curve of the supplied .28 engine makes the XLB even more versatile. For all-out high-speed runs, I adjusted the shift point so the XLB would max out in first gear before shifting. When running in smaller areas, I ran out of backyard before second gear was even needed. The buggy's top speed was 46mph, and that's impressive for such a colossal vehicle. The XTM's .28 could easily push the buggy past this mark with a gearing change.

SUPER-STABLE

With its massive footprint, the XLB is flip-proof and flattens bumps like a steamroller.

On-power, the buggy has the tendency to push or understeer, but all it took was a quick chop of the throttle to get some weight back onto the front wheels. I had to dial out steering to prevent the inside row of pins on the tires

from rubbing on upper H-arms. Nipping the knobs off would solve the problem, but the XTM guys say the production buggy will use different steering geometry to prevent rub without reducing steering throw.

BIG BRAKING

When mated with the triple disc brakes and padded steel calipers, the X-77 servo's clamping power was able to haul the big buggy to a stop in a relatively short distance. The XLB stops well enough for safe high-speed driving and racetrack action.

JUMPS & BUMPS

It's fun to catch big air with any RC vehicle, but there's nothing like doing it with a vehicle as massive as the XLB. I had the best time jumping this buggy. Its size makes it easy to line up for jumps, and it has incredible power off the line. The wheels and spike tires are not out of scale with the rest of the buggy (unlike a monster truck), so it isn't oversensitive to throttle and brake inputs while airborne. The XLB's jumping prowess was definitely its most impressive handling feature.

INCLUDED ELECTRONICS & ACCESSORIES

HITEC AGGRESSOR RADIO SYSTEM

The Agressor is one of the best budget AM systems, and a nice step up from the zero-frills systems included with some other RTRs. Along with the usual servo trims and reversing switched, the Agressor has adjustable steering dual-rate for on-the-fly steering travel adjustments and an LED battery meter. A chrome-plated, padded steering wheel and rubber grip pad make the Hitec radio look positively upscale compared with all-black-plastic radios.

XTM X-175 AND X-77 METAL-GEAR SERVOS

According to XTM, the servos' numbers reflect their torque ratings. That means the steering servo is pumping out 175 oz.-in. of torque, plenty to crank the XLB's big wheels. It's also a metal-gear, ball-bearing unit, so it should last despite big-buggy abuse. The throttle/brake servo is under less pressure and delivers 77 oz.-in. according to XTM, which is still nearly double the output of most "standard-type" servos.



THE VERDICT

Driving RC cars is all about fun, and XTM Racing delivers this in spades with the XLB. It's easy to run, accelerates like a rocket, handles well, and can jump with the best of them. It's the ultimate backyard basher, and best of all, it's just plain huge.

SOURCES

XTM RACING distributed by Global Hobby Distributors (714) 964-0827; xtm.globalhobby.com.



OFNA Jammin' X1 RTR

THE OFNA JAMMIN' X1 CR DEBUTED in the November 2004 issue as a "First Look," and we were suitably impressed with the world champion Jay Halsey-designed competition buggy. It's high on our must-drive list, but the review has to wait until we can get the kit assembled. In the meantime, the Jammin' X1 RTR is already here! It's got the same drivetrain and suspension geometry as the CR, so it has the heart and soul of OFNA's best racing buggy—plus many RTR features that make it more user-friendly than a race-spec ride. Let's take a closer look.

Track-Ready RTR



KIT FEATURES

CHASSIS. The X1 RTR features a very nice 3mm-thick machined-aluminum chassis. It's milled out to reduce weight, the radiused sides increase rigidity, and the kicked-up front end improves bump handling. Of course, all of the screw holes are countersunk, and the large flywheel opening is starter-box-friendly. Molded front and rear chassis braces help to provide rigidity, and a small aluminum upper deck houses the steering and throttle servos. The steering servo is mounted flush with the chassis to lower the center of gravity (CG) slightly, and the servo mounts double as mounting supports for the upper deck. A molded transponder mount that can accommodate personal and handout transponders is attached to the side of the upper deck. OFNA wants you to race this sucker!

The radio box has two separate compartments, and each has a removable lid (for easy access) that's held shut with body clips. There's plenty of room inside for the included 5-cell, onboard battery and full-size receiver.

DRIVETRAIN. Power is transferred from the engine to a lightweight aluminum flywheel and racing-style 3-shoe clutch. The 13-tooth clutch bell mates with a 48-tooth steel spur gear, and dogbones reach out to the front and rear diffs to provide full-time 4WD. The bevel-gear diffs feature four internal spider gears and two output gears, and they were double-O-ring sealed and filled with silicone diff fluid at the factory. Universal driveshafts power the front wheels, and steel dogbones spin the rears.

The X1 RTR features the same excellent quad disc-brake system as the X1 CR. Steel calipers with fiber pads clamp down on the vented-steel brake rotors and provide "right now" stopping power. Of course, brake tension, bias and drag brake are completely adjustable, and knurled collars on the brake linkages make it simple to set brake. A complete set of maintenance-free, rubber-sealed ball bearings ensures smooth drivetrain operation.



The front steering knuckles feature a unique "T-bolt/nut" design. The bushing-equipped mounting screws that secure the steering knuckles to the C-hubs are installed through the inside of the steering knuckles and secured on the top and bottom with locknuts.



The 7075 aluminum shock towers have plenty of shock and upper camber-link mounting options for tuning versatility. The rear hub carrier has a molded-in guard to prevent dirt from collecting on the stub axles. The adjustable rear swaybar helps reduce chassis roll.

SUSPENSION AND STEERING. The X1 RTR uses the same molded suspension components as the top-of-the-line X1 CR buggy. The OFNA racing team spent more than two years perfecting the X1 CR's suspension geometry, and it's nice to know that the RTR has benefited from the R&D.

A front C-hub suspension with extra-long lower H-arms and adjustable upper wishbones provides the bump handling. The cast-aluminum steering knuckles feature OFNA's unique "T-bolt/nut" design. Basically, the bushing-equipped mounting screws that secure the steering knuckles to the C-hubs are installed through the inside of the steering knuckles and secured on the top and bottom with locknuts. With this design, there will be no more lost screws or suspension-binding problems associated with applying too much thread-lock on the mounting screws.

Extra-long lower H-arms with turnbuckle upper camber links are used in the rear. Molded-in guards on the rear hub carriers prevent dirt from collecting around the stub axle bearings, and two wheelbase options are available depending on how you install the plastic sleeves inside the hub

INCLUDED ELECTRONICS & ACCESSORIES

OFNA AM 2-CHANNEL TRANSMITTER

The OFNA 2-channel transmitter is a basic unit with throttle and steering trims and servo-reverse switches. It may be basic, but it operates very reliably and is ultra-rugged. Don't tell me you haven't ever dropped your radio!



OFNA SX-0001 STEERING AND THROTTLE SERVOS

These are standard plastic-gear servos with approximately 50 oz.-in. of torque and transit speeds of 0.20 second. The servos adequately control the buggy, but sharper steering and throttle response could be obtained by upgrading to higher-torque/higher-speed servos.

RECHARGEABLE RECEIVER PACK AND CHARGER

The X1 RTR includes a 5-cell, 1200mAh, Ni-MH receiver pack and an overnight trickle-charger. It's a huge bonus that will save you bucks by not having to purchase new alkaline batteries after every few hours of running.

ELECTRONIC FAIL-SAFE

The X1 is equipped with OFNA's micro fail-safe unit that returns the throttle lever to neutral in the event of a signal loss. This is a great feature to have when your receiver battery goes dead. No more runaways!

SHAFT START SYSTEM

Pull-start mechanisms can be a pain, so OFNA makes life with the X1 RTR much easier by including its easy-to-use Shaft Start system. This proven system makes engine starting as easy as pushing one button.

GLOW STARTER AND TWO-BOX CARRYING BAG

Gotta have a glow-plug starter to crank over the engine, and OFNA gives you a good one. The Always Ready glow starter is powered by a high-capacity D alkaline battery that is available everywhere. The high-quality carrying bag has two boxes: one for the buggy and the other for your nitro support gear. It's great for transporting the buggy to the track.

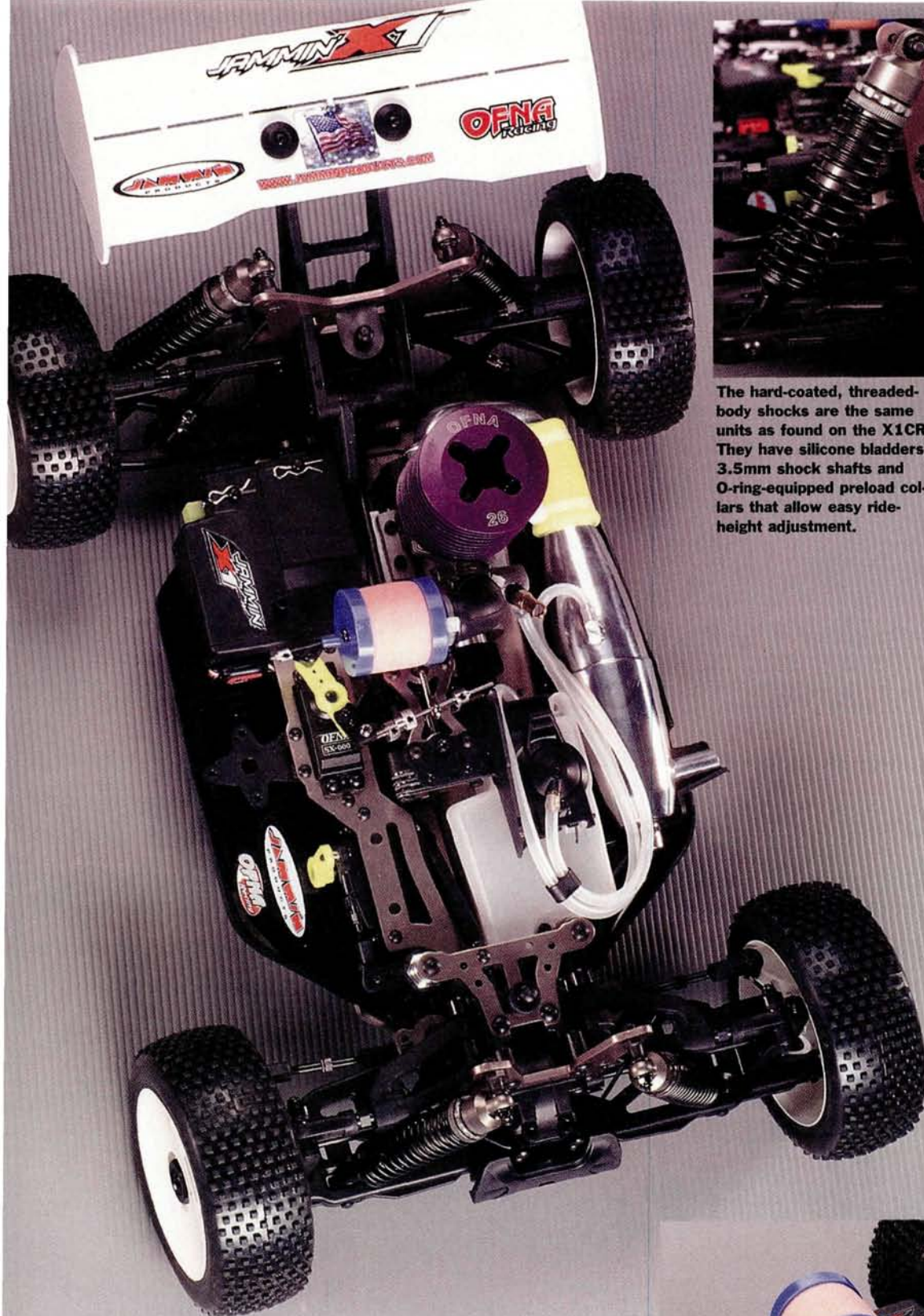
you'll need

- 8 AAs for the radio and one D battery for the glow starter
- 7.2V battery pack and charger for the Shaft Start system
- Fuel and fuel bottle

THE COMPETITION

	CHASSIS	BALL BEARINGS	DRIVESHAFTS F/R	SPUR GEAR	ENGINE	STARTER	RADIO	PRICE**	REVIEWED
GS Racing Storm RTR	3mm	Shielded	Universal/dogbone	Steel	GS .21	Pull-start	JR XR3	\$560	11/01
Kyosho MP 7.5 Ready Set	3mm	Shielded	Dogbones	Plastic	Kyosho GX-21	Pull-start	Kyosho	\$490	8/03
OFNA Hyper 7 PCR RTR	3.5mm	Rubber sealed	Universal/dogbone	Steel	Hyper 21 8-port	Starter box	OFNA	\$550	3/04
OFNA Jammin' X1 RTR	3mm	Rubber sealed	Universal/dogbone	Steel	OFNA .26	Shaft Start	OFNA	\$550	1/05
XTM X-Terminator RTR	3mm	Shielded	Universal/dogbone	Steel	XTM 24-7	Pull-start	Hitec	\$349	11/03 (RC Nitro)

*Partial list; category is too large to include all competitive vehicles. **Price varies with dealer.



SPECIFICATIONS

MANUFACTURER OFNA
MODEL Jammin' X1 CR RTR
SCALE 1/8
PRICE \$550
Varies with dealer

DIMENSIONS

Wheelbase 12.87 in. (327mm)
Width 11.87 in. (301mm)

WEIGHT

Total, as tested 126 oz. (3,572g)

CHASSIS

Type 3mm aluminum plate with plastic braces

DRIVETRAIN

Type Full-time 4WD, shaft-driven

Primary 13T clutch bell/48T spur gear

Transmission ratio 3.30:1

Final drive ratio 12.18:1

Clutch 3-shoe

Driveshafts (F/R) Universal joint/dogbones

Bearing type Metal-shielded bearings

SUSPENSION

Type (F/R) C-hub lower H-arm with upper wishbone/lower H-arm with turnbuckle upper camber link

WHEELS

Type One-piece plastic dish

TIRES

Type Jammin' Products Rippers with foam inserts

ENGINE AND ACCESSORIES

Engine OFNA/Force 26

Exhaust Tubular aluminum manifold and tuned pipe

Fuel tank 125cc

Starter OFNA Shaft Start

ELECTRONICS

Battery 5-cell, 1200mAh Ni-MH

Fail-safe OFNA

Radio system OFNA 2-channel 27MHz with 2 SX001 servos

The hard-coated, threaded-body shocks are the same units as found on the X1CR. They have silicone bladders, 3.5mm shock shafts and O-ring-equipped preload collars that allow easy ride-height adjustment.



The steering servo is mounted on the chassis on its side to reduce the CG slightly. The servo mounts also double as mounting points for the radio tray.

The Force 26 provides a good balance of acceleration and top speed. Cranking it over couldn't be easier thanks to the OFNA Shaft Start system. The cast-aluminum manifold and polished tuned pipe look sweet. The air filter even comes prelubed and ready to go.





carriers. The included front and rear swaybars reduce chassis roll.

The 7075 stamped-aluminum front and rear shock towers are extra rugged. Multiple shock and upper-arm/camber-link mounting holes are provided for track tuning, and the towers are secured to the diff housings with six screws each. The threaded-body aluminum shocks are the same proven units as used on the 9.5 and Hyper 7 series buggies, and they're as smooth as they come. The shocks have double-O-ring seals, silicone bladders, hard-coated bodies, 3.5mm shock shafts and O-ring-equipped preload adjusters. Steel turnbuckles allow front and rear camber and front toe-in/out adjustments.

ENGINE AND ACCESSORIES. An OFNA Force 26 engine provides the scoot. It's the same mill as OFNA includes with many of its RTR vehicles, including the Blazer SST, 9.5 Violator and Ultra Comp LX. The engine features a slide carb; it has the low- and high-speed needle valves on the same side of the carburetor for easy tuning. An 11-fin cylinder head keeps the engine running cool. The engine "inhales" through a prelubed single-element air filter and "exhales" through a cast, 180-degree manifold and polished-aluminum tuned pipe.

The engine is easy to crank over thanks to the OFNA Shaft Start system; it uses a stick-pack-powered, hand-held starter to fire up the engine. A 125cc fuel tank feeds the engine its life-giving brew. The tank has a quick-fill cap with pressure tap, a spillway with runoff and a trick splashguard that prevents spilt fuel from dousing the front brake rotors.

BODY, WHEELS AND TIRES. The X1 RTR has the same Jammin' Products Rippers tires as the X1 CR. These excellent tires provide awesome traction on a variety of track surfaces, and they're mounted on racy, white dish wheels. According to OFNA, the new body fits lower on the chassis to allow more cooling air to reach the engine. The painted body has snazzy-looking graphics and arrives mounted on the chassis. Two paint schemes are available: pink/silver and orange/blue. My tester is hand-painted, but according to OFNA, it matches the screen-printed bodies that will be included with production buggies.

GOING PRO

If you like the RTR but prefer a full-race kit, go for the X1 CR. It's loaded with all the racing features that you would expect on a pro-level buggy. Differences from the RTR include:

- > Hard-coated chassis, front steering knuckles, fuel filter, steering swing rack, suspension arm mounts and engine mounts.
- > Front and rear 7075 aluminum chassis braces.
- > Special "Z"-shape chassis stiffener to increase rigidity.
- > 4mm 7075 aluminum shock towers.
- > Graphite center diff support, servo tray and steering plate.
- > Front, center and rear universal drive shafts.
- > Aluminum 3-shoe clutch and lightweight flywheel.



This body was hand-painted to match the RTR design; OFNA didn't have the screen-printed shells at press time. OFNA will offer a silver and pink version in addition to the orange and blue one seen here.

PERFORMANCE

Breaking in the OFNA .26 engine was easy with the Shaft Start system, and the engine sucked up four tanks of fuel without stalling once. OFNA geared the X1 RTR just right because it accelerates hard and reaches its top speed of 44mph almost instantly. Not bad for any buggy, let alone an RTR!

The next stop was Marvin's Hobbies and Speedway in Sun Valley, CA. After a few slow laps to get used to the course, I started to pick up speed. The Jammin' Rippers tires provided excellent traction, so I was able to drive the buggy hard fast.

The X1 RTR steers well on loose dirt where you can get the rear tires to break free, but on high-traction surfaces the steering seems slow, and it's somewhat difficult to navigate tight turns. The steering servo is a standard plastic gear unit with around 50 oz.-in. of torque, so upgrading to a stronger servo would instantly cure this problem. OFNA also includes a rechargeable receiver pack that does bump up the strength of the servos; this really helps the stock servo get the X1 around the track. The buggy pushed a little when it entered corners under power, but letting off the gas momentarily and jumping back on the throttle allowed it to rotate better in the corners. Slow-speed steering was precise, but the stock servo setup prevented me from flying through the track's technical sections.

I was equally impressed with the brakes; the buggy slowed down quickly and smoothly, and the standard servo had enough torque to lock up the wheels. Bump handling was great. The buggy got slightly tossed around on some of the track's imperfections, but I was able to easily keep it on all four tires through the rough stuff. The suspension works as well as any other race buggy I've driven. The X1 delivers a sense of confidence and control as you drive it around the track. The X1 RTR loves to jump. Clearing the widely spaced triple section was easy thanks to the power on tap, and the buggy flies through the air nice and level. I cleared the triples every time and made perfect landings on the down-slope of the last jump by tapping the brakes slightly in midair to bring the buggy's nose down; how sweet it is!

It didn't take long before I was ripping up the track. Overall, the X1 is the most-dialed RTR that I've ever piloted. A few guys raced their Kyosho and Mugen buggies alongside me, and I had no problem keeping pace. One of them even wanted to know which engine I was running; naturally, they were surprised when I told them it's the engine that came with the RTR buggy. The engine started every time and ran fantastic throughout testing.

THE VERDICT

I'm impressed with the Jammin' X1 RTR. I was able to drive it as hard and fast as any pro-level buggy. That really isn't surprising when you consider that the X1 RTR has the same suspension and drivetrain as its pro-level sibling, the X1 CR. Starting the X1 RTR is much easier with the Shaft Start system, and it sure was nice that I didn't have to lug a heavy starter box to the track. The best part, however, is that the X1 RTR already has a ton of factory option parts to make it even more formidable. If you're looking to get into the exciting world of 1/8-scale off-road racing, the X1 RTR is a great choice for racers on a budget. Or not on a budget. It's that good.



LIKES

- > Feature-filled chassis
- > Shaft Start system
- > Great tires included
- > Awesome-looking body
- > Steering knuckles with "T-bolt/nut" hardware

DISLIKES

- > Should include high-torque steering servo

TEST GEAR



Trinity 25-percent Monster Horsepower fuel

Trinity states it uses only the finest ingredients available such as the purest nitro and only degummed castor. I chose 25-percent fuel, and it worked perfectly in the OFNA Force 26 engine.

SOURCES

OFNA RACING (949) 586-2910; ofna.com.

TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

RATING THE OFNA JAMMIN' X1 RTR

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	Good illustrations, but the photocopied presentation is poor.				
INCLUDED ELECTRONICS	Radio is reliable but lacks features.				
PARTS FIT & FINISH	Everything fits well; no binding, no slop.				
ACCELERATION	The Force 26 provides good acceleration.				
CORNERING ABILITY	The buggy steers decently, but a high-torque servo would make it steer better.				
BUMP & JUMP HANDLING	Great rough-track performer; jumps very well.				
DURABILITY	Nothing broke or bent during testing, and the buggy doesn't show significant signs of wear after testing.				
RADAR TESTED TOP SPEED	44MPH*				
BEST BUYER	1/8-scale buggy racers looking for an RTR.				

* Top speed varies with equipment used.



GS Racing Storm RTR Plus

THREE YEARS AGO, THE ORIGINAL STORM RTR CAME ONTO THE SCENE and promptly raised the bar for ready-to-run (RTR) 1/8-scale buggies. It proved that RTR buggies didn't have to be stripped down, bare bones creations; in fact, the Storm was rock-solid and included some pleasantly surprising specs. Back then, similar RTR buggies were good for backyard bashing but not expected to hold their own at the track. In contrast, the Storm was equally at home tearing up turf and down-siding doubles. The competitors eventually caught on and others have joined the fray, so GS Racing has met the challenge with its new Storm RTR Plus.

FAST-MOVING STORM



KIT FEATURES

CHASSIS. The Storm RTR Plus's main chassis, shock towers and upper plates have all been anodized in a cool, industrial-tough-looking titanium color—a nice departure from the seemingly endless sea of blue and purple parts. The chassis is 3mm thick, and you'll find all the typical 1/8-scale buggy features when you flip the Storm over; the holes are all deeply countersunk, the front has a kick-up bent into it, the sides are also slightly radiused to increase stiffness and reduce chassis drag when cornering and the hole for the flywheel is nicely chamfered to accommodate a starter box wheel, should you use one.

The chassis primarily consists of a single aluminum plate, and the radio tray and upper chassis plates are cut out of 2mm thick aluminum. The front upper plate ties the steering bellcranks to the front bulkhead and the radio tray supports the Storm's two servos. A third, smaller plate bridges the gap over the center differential. And to further brace the chassis, fixed-length rods also extend from the chassis up to the rear bulkhead and to the front of the upper plate. A combination receiver/battery box sits behind the radio tray. This keeps the batteries in place and protects the receiver from fuel and debris. Overall, the chassis has the conventional 1/8-scale buggy layout and, as a bonus, everything is well spaced. When working on the Storm, use a properly sized screwdriver, as the screw heads are just soft enough to strip, but with a little care that will never happen.

DRIVETRAIN. Like other 1/8-scale buggies, the Storm RTR Plus uses a single-speed transmission setup with three gear-type differentials—one front, one rear and a center diff that splits power front to back. All three differentials are gasket sealed and can be filled with silicone fluid of differing thicknesses to tune their action. The gears come with a healthy coating of grease, but adding thick silicone is a great way to tune the buggy's track manners. The drivetrain spins on rubber-shielded bearings, and universal driveshafts sit up front. The center driveshafts and rear drive axles use dogbones. Flanking the center differential are two thin, vented disc brakes; the discs and calipers are steel, but the brake pads are fiber. The spur gear is made of steel and should withstand a lot of abuse.



Twin disc brakes flank a sturdy steel spur gear. Note the vented discs. The center diff, like the front and rear diffs, can be filled with thick silicone fluid to alter the handling in the turns.

ENGINE AND ACCESSORIES. GS Racing includes its GS B-02 .21 engine accompanied by its "High-Torque" tuned exhaust system. The big-block engine is of the pull-start variety, but you could use a starter box if you have one. A black, finned heat sink sits on top of the engine, and a 3-shoe clutch spins inside the 13-tooth clutch bell. Finned, adjustable engine mounts help keep temps down and allow you to make gearing changes and install a different engine. The slide carburetor has the typical

adjustable high-speed and low-speed needles, and a shielded air filter is attached to the end of a silicone filter coupler. A 125cc fuel tank with a built-in filter stores the go-juice, and GS Racing includes its own blue silicone fuel tubing.

SUSPENSION AND STEERING. GS went with a durable C-hub suspension for the Storm Plus. The front suspension's C-hubs have built-in shields and are built out of substantially thick plastic. The stout-looking rear hubs are also plastic, and the hinge pins are held by setscrews. The 4mm-thick front shock tower is extra strong. Cast aluminum is used for the steering knuckles and the inner suspension-arm mounts. The shocks are aluminum-body, fluid-filled units equipped with fairly stiff springs. Also, because the inner suspension-arm mounts are separate pieces, the gearboxes can be removed while leaving the suspension intact.

The steering setup is typical 1/8-scale-buggy fare: twin bellcranks are joined by an aluminum plate that turns the steering knuckles via threaded turnbuckles. Three holes in the steering plate allow changes in Ackerman which alter the steering's aggressiveness. A servo-saver is built into the right bellcrank.

BODY, WHEELS AND TIRES. In my opinion, GS Racing scores some serious style points with its new look for the Storm. I was also happy to see that the cool, split, 5-spoke rims have been carried over. The stickered and trimmed shell has a nice, multicolored silk-screened "paint job." The stock rubber is firmly glued to the rims. The tires are soft and have a fairly nonaggressive tread pattern that should work well on most surfaces. Whether ripping down the street or blasting around a dirt lot, these tires will get the job done. If you plan to race, just hook yourself up with whatever the fast guys run.

INCLUDED ELECTRONICS & ACCESSORIES

GS RACING B-T1 TRANSMITTER. The Storm's FM transmitter includes endpoint adjustments in addition to typical radio features such as trim adjustments and a charging jack. I didn't care too much for the plastic steering wheel and the transmitter's toyish look, but it's hard to criticize an FM radio with such nice features.

GWS AND GS SERVOS. The GWS S03T included for steering is rated at an impressive 100 oz.-in. of torque. GS Racing uses its own standard servo for throttle and brake duties.

TOOLS. GS Racing includes a sharp blue-anodized glow starter that runs off an AA battery. You'll also find a 4-way wrench and a fuel bottle in the box.



you'll need

- Nitro fuel
- 12 AA batteries

factory options*

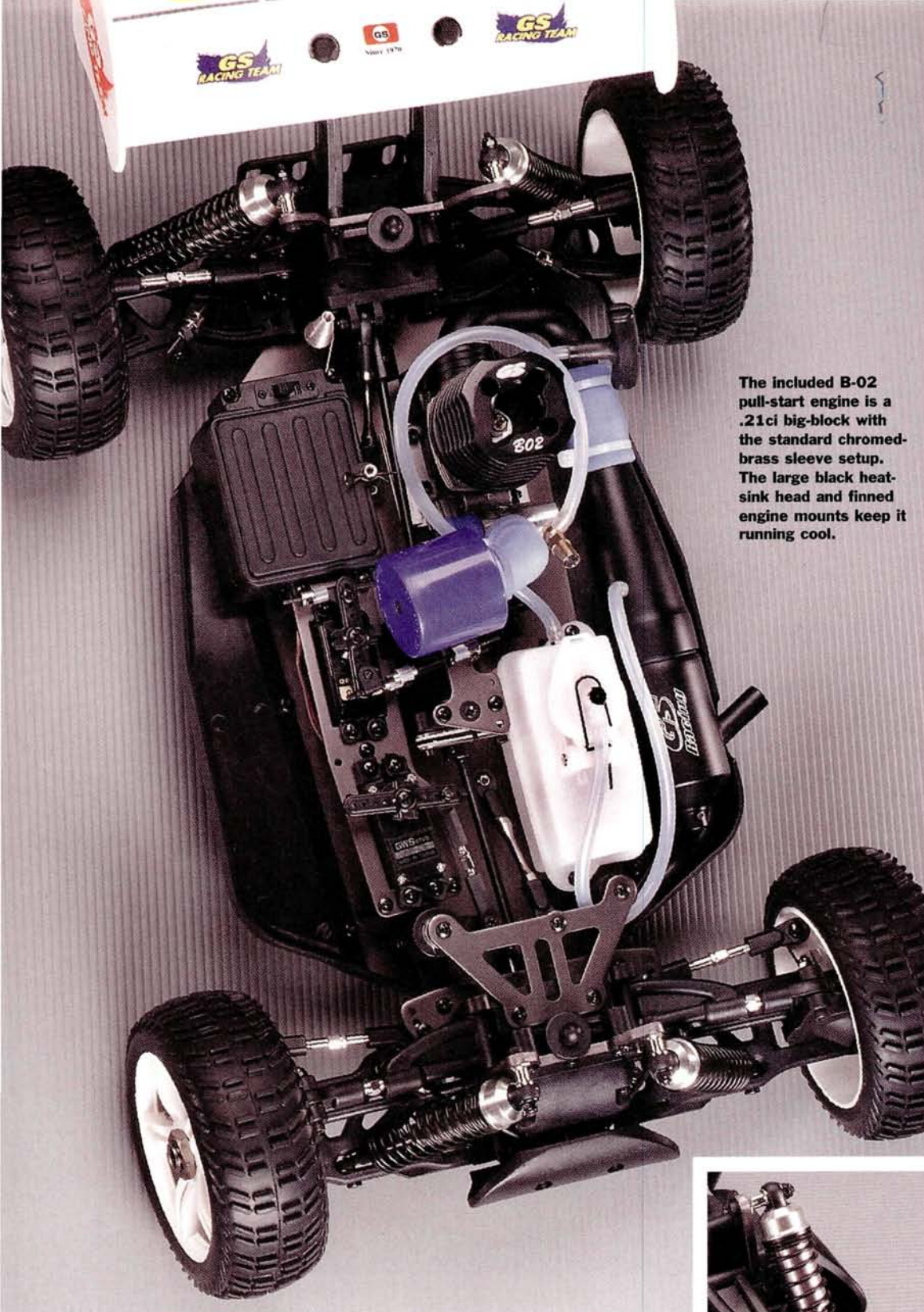
- Hard-anodized, Teflon-coated 7075 main chassis plate—part no. GS-STP05
- Front universal center shaft—GS-STP17
- Rear universal center shaft—GS-STP18
- Universal rear driveshafts—GS-STP19
- Hard-anodized steering-plate set—GS-STP04
- T6 suspension mount with 3 deg. of anti-squat—GS-TP11
- T6 2-piece center diff mount—GS-STP27
- Adjustable servo-saver set—GS-STP13

* Partial list, other options available.

THE COMPETITION

	CHASSIS	BALL BEARINGS	DRIVESHAFTS F/R	SPUR GEAR	ENGINE	STARTER	RADIO	PRICE	REVIEWED
GS Racing Storm RTR Plus	3mm	Rubber-shielded	Universal/dogbones	Steel	GS B-02 .21	Pull-start	GS Racing	\$380	1/05
Kyosho MP 7.5 Ready Set	3mm	Shielded	Dogbones	Plastic	Kyosho GX-21	Pull-start	Kyosho	\$490	8/03
OFNA Hyper 7 PCR RTR	3.5mm	Rubber-sealed	Universal/dogbones	Steel	Hyper 21	Starter box	OFNA	\$550	3/04
OFNA Jammin' X1 RTR	3mm	Rubber-sealed	Universal/dogbones	Steel	OFNA .26	Shaft-start	OFNA	\$429	1/05
XTM X-Terminator RTR	3mm	Shielded	Universal/dogbones	Steel	XTM 24-7	Pull-start	Hitec	\$349	11/03 (RC Nitro)

Partial list; category is too large to include all competitive vehicles. Price varies with dealer.



The included B-02 pull-start engine is a .21ci big-block with the standard chromed-brass sleeve setup. The large black heat-sink head and finned engine mounts keep it running cool.

SPECIFICATIONS

MANUFACTURER GS Racing

MODEL Storm RTR Plus

SCALE 1/8

PRICE \$380

Varies with dealer

DIMENSIONS

Wheelbase (adjustable) 12.6 to 12.8 in. (320 to 325mm)

Width 12 in. (305mm)

WEIGHT

Total, as tested 118.4 oz. (3,357g)

CHASSIS

Type Stamped plate with kick-up and radiused sides

Material 3mm aluminum

DRIVETRAIN

Type Shaft-driven 4WD

Primary 13T clutch bell/46T spur gear

Transmission ratio 3.54:1

Final drive ratio 11.72:1

Drive shafts (F/R) Universal/dogbones

Differentials 6-gear, sealed

Bearing type Rubber-sealed ball bearings

SUSPENSION (F/R)

Type Lower H-arm with adjustable upper camber link/lower H-arm with adjustable upper camber link

Shocks Fluid-filled aluminum body with clip-on spacers

WHEELS

Type One-piece, split 5-spoke

TIRES

Type Soft-compound rubber with foam inserts

ENGINE & ACCESSORIES

Engine GS B-02 .21 with pull-start

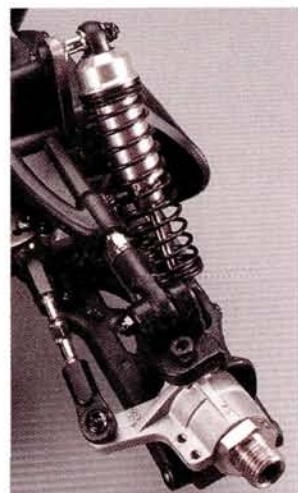
Carburetor 2-needle slide

Exhaust Round-port manifold with tuned pipe

Fuel tank 125cc with internal filter



Left: nitro buggies are subjected to all sorts of abuse, so they must be durable. The Storm's front shock tower is 4mm thick and should be able to take quite a beating. **Right:** up front, the steering knuckles are cast aluminum, and the drive axles are universal. **Far right:** like other 1/8-scale buggies, the Storm has beefy suspension parts. The arms and hub are made out of thick plastic. It is also very adjustable; check out the five camber-link positions on the hub.



PERFORMANCE

I took the Storm RTR Plus to our local BMX track (Bethel Supercross in Bethel, CT) and gave it the sort of shakedown I think it will see in the hands of its potential owners. Not that everyone will take his buggy to a bike track, but the layout at Bethel Supercross has lots of big dirt jumps that are just perfect for launching 1/8-scale buggies. There's also a variety of terrain in and around the track to run the Storm over.

The needle settings on the B-02 .21's carb were significantly out of tune and, as a result, it took me longer than usual to get the Storm up and running. I had to lean out the high- and low-end needles about 2 turns each to get the engine to start and stay running. I later had to richen the low-end needle about 1/2 turn to get the engine in tune. Keep in mind that the correct carb settings vary with the weather and atmospheric conditions.

Once broken in, the B-02 ran smoothly, and as long as I didn't let it sit and idle forever, it wasn't prone to loading up with fuel and bogging down; it actually idled better than many other nitro engines I've run. Off the line, the Storm pulls away with the authority you'd expect from a big-block-powered buggy. With just grease inside, the diffs did unload a bit, and that hampered acceleration slightly, especially coming out of the corners. Filling the diffs with thick silicone would instantly fix this barely noticeable trait, and I wouldn't even bother unless you plan to race.

Through the turns and when on the gas, the GS Racing buggy has the typical, mild 4WD buggy push, but it stays almost completely level; there is very little noticeable body roll, but it will power slide on command. Blasting this buggy around corners with all four wheels spinning and sliding was a ton of fun. This might not be the fast way around a track, but who cares? The steering is very sensitive, but a smooth touch is all that's needed to keep this buggy under control.

Did I mention how much fun it is to power-slide this thing around the turns? Well, jumping was also a blast. The Storm's stiff suspension easily absorbed the impacts on landing after big-air jumps. When it's airborne, throttle and brake inputs easily—and very noticeably—control the Storm's attitude. When you stay on the gas, the nose stays up, and a tap of the brakes lowers it for perfect downside landings; this has to be one of the coolest things about over-powered 1/8-scale buggies. On smaller bumps and ruts, the buggy can get bounced around a bit, but a shock-spring swap would instantly fix this. And again, this is really only an issue if you plan to get competitive.

The Storm's braking is smooth and consistent. Out of the box, I had to adjust the brake linkages to get the brakes to clamp fully, but that took less than a few minutes. Once the brakes have been dialed in, there isn't an overabundance of stopping power, but they get the job done, and there isn't any noticeable fade.

Although I didn't purposely ram it into anything, I ran the Storm extremely hard throughout testing. I tried every jump at the track, and more than once I missed a landing and sent the Storm tumbling hard out into the weeds. Even after all this abuse, the only problem I noticed was a slightly tweaked rear shock tower. This had absolutely no noticeable effect on the buggy's performance, and GS Racing offers an extensive line of even beefier hop-up parts; you could also just double up the shock-tower plates in the rear for an extra-thick and durable setup. Like any buggy that has been run hard, the chassis is now scraped and scratched, but everything works as well as it did when I took it out of the box.

THE VERDICT

GS Racing definitely stepped things up with its updated Storm RTR buggy. It deserves the "Plus" designation and will make a great first 1/8-scale buggy for RC newcomers and veteran racers who want to try a new class. GS Racing also includes a complete package that makes getting started easy. You won't have to buy a fuel bottle, a 4-way wrench or a glow starter; they're all right there in the box. Overall, the Storm RTR Plus is a solid buggy that does what it's supposed to do and is one of the best bargains on the market.



LIKES

- > Tough-looking titanium-colored finish.
- > Good-looking body.
- > FM radio gear.

DISLIKES

- > Transmitter is small.
- > Spring-loaded antenna mount isn't secure.

TEST GEAR

Sidewinder Cool Power Race

To fuel this Storm, I selected Sidewinder's Cool Power Race blend fuel with 20-percent nitro. I could have gone with 30-percent nitro that is often used with big-block engines, but since I wasn't going to race the Storm, I stayed with the tamer 20 percent. Sidewinder fuel also comes in three blends—Backyard Basher, Race and Pro-Race—and each contains a different amount of lubricant.



RATING THE GS RACING STORM RTR PLUS

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	The well-detailed and thorough manual even includes setup sheets.				
INCLUDED ELECTRONICS	The radio gets points for being FM but has a toy-like feel.				
PARTS FIT & FINISH	The overall quality is good. The Storm is well assembled, and all metal-to-metal fittings were thread-locked.				
ACCELERATION	The B-02 isn't the fastest in the line, but it's on par with other RTR engines.				
CORNERING ABILITY	The suspension works as it should, but the stock tires hold it back in the turns.				
BUMP & JUMP HANDLING	Stock setup is great for big air but is bouncy on the ruts and bumps.				
DURABILITY	Only a slightly bent shock tower, and the screws are soft enough to strip if you aren't careful.				

RADAR TESTED TOP SPEED 38MPH*

BEST BUYER First-time 1/8-scale buggy drivers

* Top speed varies with equipment used.

SOURCES

GS RACING distributed exclusively by General Silicoes Group Inc. (626) 338-3815, gs racing.com.

SIDEWINDER FUELS distributed by Morgan Fuel (800) 633-7556 (334) 347-3525; morgan-fuel.com.



Kyosho Inferno MP 777 Special 1

THE 1/10-SCALE COMPETITION BUGGY MARKET KYOSHO DEFINED and called its own for several years is now crowded with dozens of competitors. So what did Kyosho do? It introduced the MP 777 Special 1—an all-new highly refined Inferno. Although the blue anodizing, gold chassis and black molded-plastic components look familiar, a set of calipers and a careful comparison tell a different story. The 777 Special 1 has a completely new suspension, a redesigned chassis, lighter running gear and many more improvements that make it the best Kyosho buggy yet.

Lucky sevens



KIT FEATURES

CHASSIS. The Special 1's 3.5mm gold-anodized aluminum chassis is machined rather handsomely. Although the chassis looks similar to previous designs, it's narrower at the front and rear. This change was made to achieve one of Kyosho's main goals with this buggy—to increase suspension travel. The suspension-arm mounts are closer to the chassis' centerline to allow longer suspension arms to be used. The result is more down-travel for improved rough-track handling. Eight degrees of front chassis kick-up is still standard. Recesses stamped into the chassis let the front and rear diffs sit as low as possible. The section under the clutch bell has been milled out for clearance, but this section no longer protrudes through the bottom of the chassis as it did on the Kanai 3. The engine is also mounted farther forward by about 1.5mm to centralize the weight of the buggy's heaviest component. This slight change increases steering. Torque rods that snap into ball ends fastened to the chassis support the front and rear ends. Machined-aluminum braces would have been a nice touch. The servo tray, steering brace and center diff brace are all anodized blue and made out of 6061 aluminum. The radio box is a little smaller, so the electronics fit is tighter, but there are still two separate compartments for the receiver pack and the receiver. Kyosho buffs will also appreciate the flat-head screws that are used to secure the mudguards (the earlier buggy has button-head screws that protrude slightly). The mudguards are nearly 10mm longer and 10mm narrower. The front suspension-arm mount is secured with two additional screws that pass through the bottom of the chassis.

DRIVETRAIN. Three silicone-filled bevel-gear diffs provide the ultimate traction control. The "TCD" front diff (Traction Control Diff) limits the diff action to produce as much forward drive as possible and is equipped with hardened-steel gears for ultimate strength. Hard steel ring and pinion gears are used in the front and rear diffs for the same reason. The center and rear diffs have cast-aluminum gears, and the center diff secures the 46-tooth steel spur gear. Serious racers will be pleased that the kit comes with enough 1,000WT, 4,000WT and TCD silicone diff oil to fill all three diffs twice.

Shiny steel front, center and rear universals transfer power smoothly and efficiently. The entire drivetrain spins on heavy-duty, metal-shielded ball bearings. Two precision-ground, vented brake rotors are pinched by rubber-lined calipers on each side of the center diff to provide the braking force. Since the brakes work independently, front and rear brake bias is adjustable. Knurled linkage collars make setting the brakes up a snap.

ENGINE AND ACCESSORIES. The Special 1 does not include an engine, but it will handle the power of any rear-exhaust .21. The hardened-steel, 13-tooth clutch bell and 46-tooth spur gear work well for most tracks. The kit also comes with a blue-anodized flywheel, engine mounts, aluminum clutch shoes, a large fuel filter, approximately 2.5 feet of fuel tubing and a 125cc primerless fuel tank with a stone filter. The tank's top has a unique spillway that carries spilled fuel to the bottom of the chassis, and a "shark's-fin" splashguard attached to the center diff brace keeps spilled fuel away from the front brakes. An oversize air filter in a plastic, moisture-proof cover comes ready to fit most .21 engines.

SUSPENSION AND STEERING. The suspension arms are lighter because unnecessary plastic has been removed from the low-stress areas. The rear



The new shocks have 3.5mm shock shafts. According to Kyosho pro Mark Pavidis, the blue springs are ideal for most tracks.

arms are kicked up at the chassis' outer edges to meet the hubs; this leaves more room for the universals in the middle of the arms for extra suspension articulation. The rear arms are swept backwards slightly to lengthen the buggy's wheelbase. The rear shock tower looks like the K3's,

BUILDING & SETUP TIPS

The Special 1's parts fit and finish are impressive, but the CAD-heavy, light-on-text instructions may present problems for new builders. The symbols do point out "Don't over-tighten this" and "Watch out for this," but certain building steps are tricky. Here are a few suggestions and tips that will make your build a breeze.

USE THE "ACTUAL SIZE"

LEGEND at the top left of each step in the manual to make sure that you have screws of the proper length and the correct spacers, collars, etc.

STEP 2: rear diff installation. The diagram shows using two shims for properly spacing the diff in the rear diff case. I found that two shims was too tight of a fit and used one shim on each side.

STEP 8: turnbuckles and ball ends. I used a crescent wrench to secure the threaded rods while I threaded the ball ends onto both rod ends of the threaded rod. Pliers would scuff the shafts and allow them to slip while you tried to tighten the ball ends.

STEPS 10 AND 19: rear and front swaybars. Do not overtighten the setscrews that secure the front and rear swaybars. They should be able to move freely from side to side and front and back. Leave

about 1/16 inch of play in all directions.

STEP 18: front upper arm installation. The illustration shows one hole in the C-hub, but the Special 1's C-hubs have three. I used the middle hole for my tests.

STEP 21: BRAKE PADS. When gluing the brake pads to the calipers, be sure to align the holes for the mounting screws properly. Any overlap will cause binding and will prevent the brakes from working properly.

USE LOCTITE ON ANY SCREWS that thread into metal, just don't use any on the shock-mounting screws because you'll want to be able to make quick adjustments at the track.

SEPARATE THE SELF-TAPPING SCREWS and the machined screws before you build. It will make it easier to find what you need and will speed up the build.

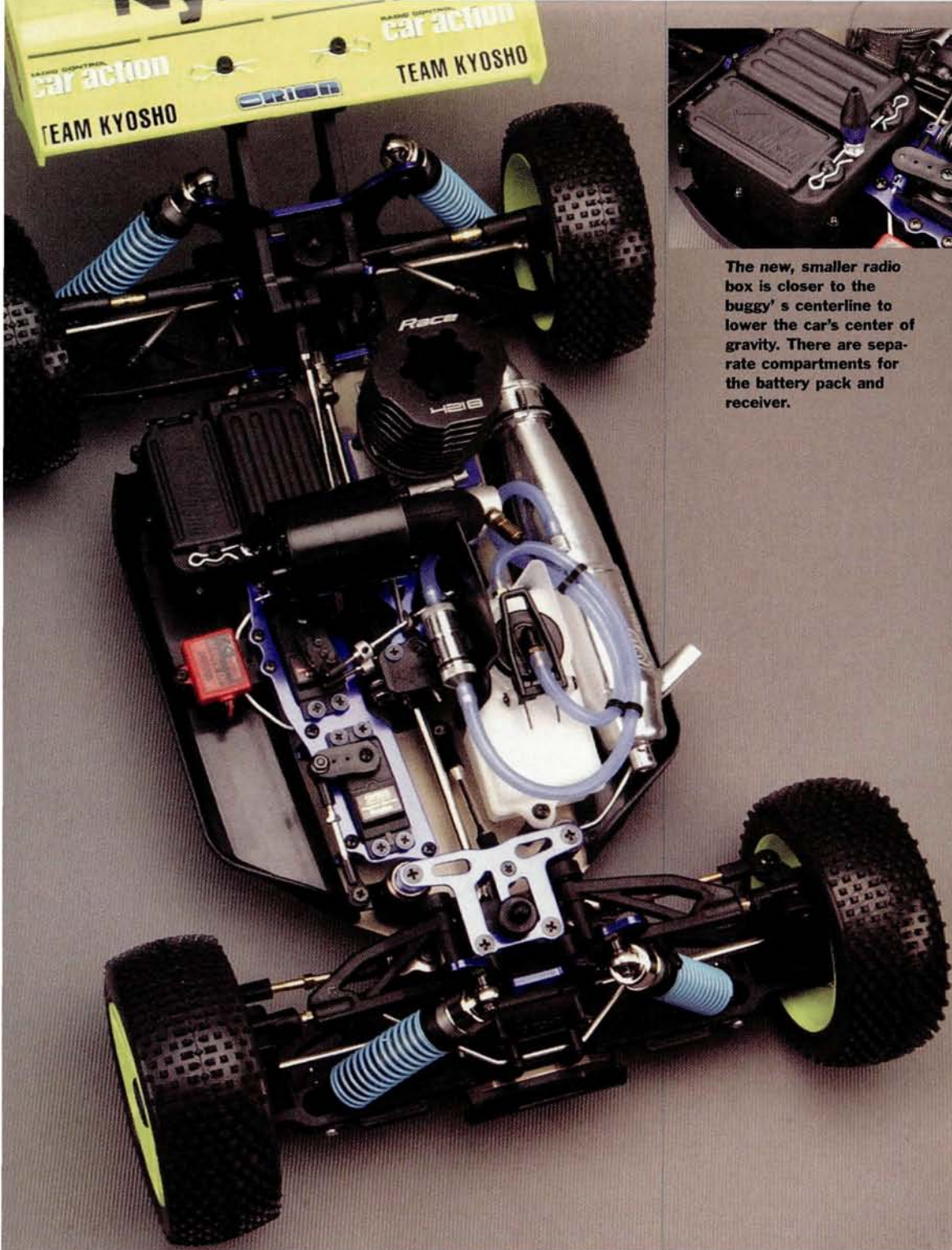
you'll need

- Transmitter and receiver
- Steering and throttle servos
- 5-cell receiver pack
- Tires
- Fuel and fuel bottle
- .21 Engine, manifold and pipe
- Starter box
- Glow-plug igniter

THE COMPETITION

	CHASSIS	SHOCKS	SHOCK SHAFTS	SUSPENSION	REAR HUBS	DRIVE AXLES(F/R)	BALL BEARINGS	PRICE	REVIEWED
Kyosho MP 777 Special 1	3.5mm	Aluminum	3.5mm	C-hub	Plastic	CV type	Metal-shielded	\$800	01/05
Mugen MBX-5	3mm	Aluminum	3.5mm	Pivot-ball	Plastic	CV type	Rubber-sealed	\$580	09/03
OFNA Hyper 7 Pro	3.5mm	Aluminum	3mm	C-hub	Plastic	CV/dogbone	Rubber-sealed	\$470	10/01
XRAY XB8	3mm	Aluminum	3.5mm	C-hub	Plastic	Universals	Rubber-sealed	\$650	11/04
XTM X-Terminator Pro	3mm	Threaded aluminum	3mm	C-hub	Aluminum	CV type	Rubber-sealed	\$300	10/04

Price varies with dealer



The new, smaller radio box is closer to the buggy's centerline to lower the car's center of gravity. There are separate compartments for the battery pack and receiver.

SPECIFICATIONS

MANUFACTURER Kyosho
MODEL MP 777 Special 1
DISTRIBUTED BY Great Planes
SCALE 1/8
PRICE \$799
Varies with dealer

DIMENSIONS

Wheelbase 12.7 to 12.9 in.
 (323 to 328mm)
Width 12.1 in. (307mm)

WEIGHT

Total, as tested 123.5 oz.
 (3,501.2g)

CHASSIS

Type Lower machined plate
Material 3.5mm hard-anodized aluminum

DRIVETRAIN

Type Shaft-driven, full-time 4WD
Primary 13T clutch bell/46T spur
Transmission ratio 3.32
Final drive ratio 11.7: 1
Drive shafts CV-type
Differentials Sealed, 6-gear, silicone-filled
Bearing type Metal-shielded

SUSPENSION (F/R)

Type Lower A-arms with adjustable upper links
Shocks Aluminum-body, oil-filled coil-overs with 3.5mm shafts

WHEELS

Type Dish-type with slots

TIRES

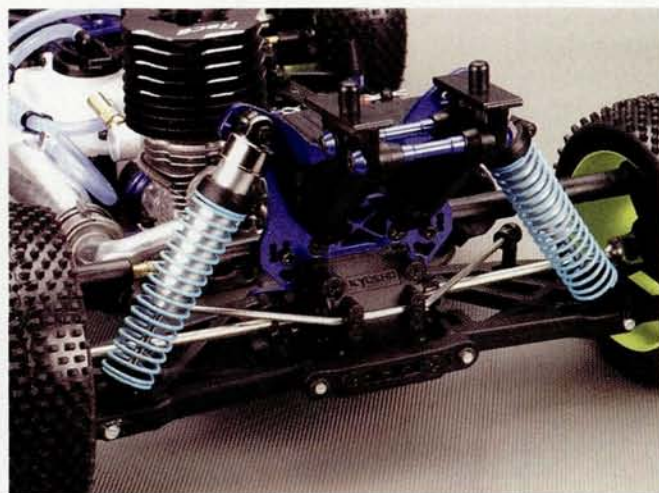
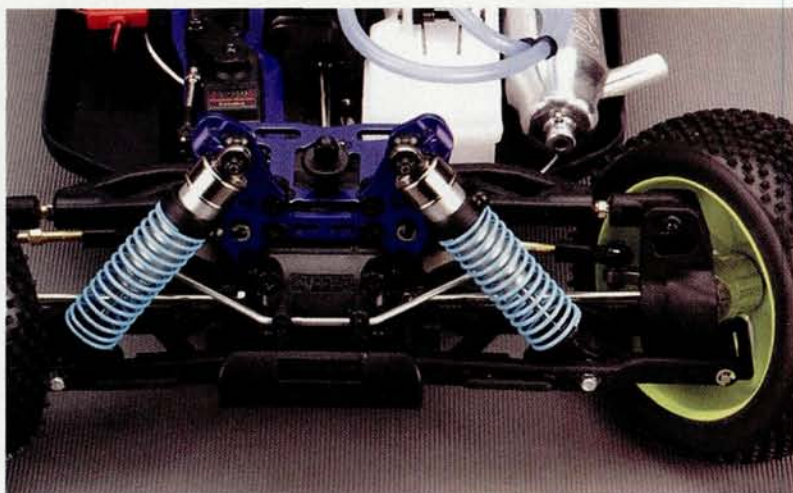
Not included

ELECTRONICS

Not included

Below left: stout front and rear swaybars keep the buggy level in the turns, and machined shock towers make them lighter.

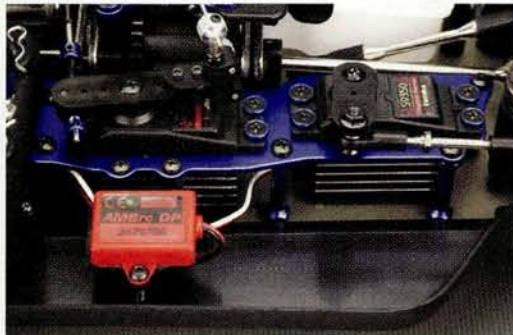
Below right: the rear suspension arms are swept back and kicked up to meet the hubs. This gives the universals more room for increased downtravel.



TRACK TEST KYOSHO INFERNO MP 777 SPECIAL 1

but it is lighter and has an additional upper link mounting for additional rear-roll-center adjustment.

Hardened-steel hinge pins are used throughout, and the inner front and rear pins are 4mm thick. The hinge pins that are attached to the inside of the front upper arms are held by inserts that have offset holes to allow roll-center adjustment. Kyosho supplies two sets of front C-hubs with 20 and



The servo tray sits nearly 2mm lower than the servo trays in other Kyosho vehicles.

A "shark-fin" fuel guard and an over-size fuel filter are included with the kit. The throttle and brake linkages are easy to adjust.



22 degrees of caster. The Special 1 kit also comes with your choice of shock-preload shim clips or clamp-type preload collars. All four shocks have been beefed up with 3.5mm shock shafts. The shock bodies are hard-coated aluminum and have shiny, chrome-like bladder caps. Kyosho outfits the Special 1 with Blue "medium" springs for the front and rear. At most tracks, Kyosho pros Mark Pavidis and Greg Degani use the Blue springs with various oil combinations. Unfortunately, shock oil isn't included with the kit. Front and rear swaybars are included and so are hard-anodized "gold" steel turnbuckles. The manual suggests that you use the stock "white" 1.2mm pistons, but "black" 1.1mm pistons are also included. I ran the 3-degree rear-toe-in block, but 1- and 2-degree blocks are provided as well.

Up front, the steering-bellcrank's pivot points are nearly 6mm closer together. This, with the curved bellcrank arms, produces a more severe steering angle. The right bellcrank houses a servo-saver towards its top—just under the front steering brace for easier access.

BODY, WHEELS AND TIRES. The 777 gets a new body and slotted wheels—tires aren't included. The bright yellow dish-style rims' five slots allow dirt to pass through the rim rather than collect inside it. This prevents the wheels from becoming grossly out of balance during a race. The matching yellow wing must have its mounting holes drilled for proper installation. The curvaceous body may not look different from the K3's at first glance, but the roof and sides are much more radiused. The body also sits lower and is about 10mm narrower. According to Kyosho, the body is designed to produce more downforce. The Special 1 kit includes blue-anodized 17mm wheel nuts that finish it off quite nicely, but Kyosho leaves the tire selection up to you. I chose Pro-Line Crime Fighters because they have one of the most versatile tread patterns.

GET IN THE DRIVER'S SEAT

INTRODUCING

SEAGULL Wireless Telemetry



Imagine – now you can know what's happening in your car while it's on the track. Why run blind when the Seagull Wireless Dashboard puts you in the Driver's Seat! See critical car parameters in real-time on the LCD, and set audible alarms for speed, voltage, engine temperature, RPM, cumulative mAH, and so much more. Race like our full size buddies with Seagull!



SPECIFICATIONS

- Works with your existing Radio TX/RX
- Built-in LCD and programmable audible alarm
- Up to 12 channels of wireless telemetry data
- RPM, Temp, Voltage, Servos, and many other parameters
- Optional Amperage, Cumulative mAH, EGT, G-Force
- Powered from your receiver battery for light weight
- USB for ease of setup and configuration
- Live full screen display on optional Laptop



Dashboard on Your Transmitter



Onboard component

Display with optional laptop

www.eagletreesystems.com



Sales: 888-432-4744
sales@eagletreesystems.com
Service: (425) 614-0450
Fax: (425) 484-4131

PERFORMANCE

Many of California's top 1/8-scale pros call Marvin's Hobbies and Raceways (formerly KZ) their home track. Chad Bradley and "Oh, man" longtime racer Steve Dunn often design the layouts for the major races that are frequently held there. The current layout has a 200-foot-plus back straightaway, several doubles and a huge quad. When it's wet, the dirt is tacky, and when it's dry, it's hard-packed and dusty. I decided to run the buggy on two different days to test it on both types of surface.

On my first venture to the track, the surface was hard-packed and dusty and broken up in some places. During my first couple of tanks, I wanted to get familiar with the layout and how the buggy would respond to throttle and steering inputs. I also needed to run a few more tanks through the engine to completely break it in. I noticed, right off the bat, that the buggy has oodles of steering. I thought it was because I was taking it easy, but on-power steering was equally impressive. The rear end probably contributed something to the steering because the track was fairly loose.

After two and half tanks, I dropped the hammer because the Hot Mods Top engine was completely broken in and I was familiar with the track. The Special 1 leapt over the large quad jump like a gazelle. I expected an abrupt landing but was pleasantly surprised. It did bottom out, but it didn't get out of shape. I continued to dive it into the corners, and it went where I pointed it. When I hit the brakes, they immediately stopped the buggy. I actually dialed out a little servo throw to reduce the abruptness of the braking action.

Every few laps or so, I managed to take a turn too tightly and clip the pipe, but nothing broke. The track was chewed up pretty badly in some places, but I didn't really notice it until after I had finished driving because the Special 1 blew through the rough sections as if they weren't there. The rear end felt looser than I would have liked, but I attribute most of that to the dusty surface. After about seven tanks on the track, I called it a day.

I made it back to the track nearly a week later and watered the track for the second test session. The buggy felt tighter and easier to drive. I was able to hit the corners with a little more speed and blast out of them without the rear end rotating excessively.

After the first tank of fuel, I inspected the Special 1 because it had collected a ton of dirt. The rear chassis brace had popped off, but I simply snapped it back into place. As the day went on, I seemed to be getting faster or feeling more comfortable. The car felt so good! On the wet surface, it accelerated hard, turned exceptionally well and jumped as expected.

THE VERDICT

With six consecutive IFMAR World Championship titles to its name, the Inferno MP-series buggies seemed hard to improve. But with the new 777 in "Special 1" trim, Kyosho has done just that. The proven MP-7.5 drivetrain combined with the 777's narrower chassis, more supple suspension and myriad small but significant tweaks result in a machine that has more steering precision and sheer handling ability than I thought possible in the 1/8-scale buggy class. Ironically, the debut of the Special 1 at the 2004 IFMAR Worlds was the end of Kyosho's winning streak (because the Team drivers didn't have enough preparation time with the new car, according to the Team drivers themselves), and that leads me to my closing line: wait until the 2006 Worlds!



RATING THE KYOSHO INFERNO MP 777 SPECIAL 1

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	The illustrations will get you through the building, but the written instructions are vague.				
PARTS FIT & FINISH	The parts fit and finish are first rate.				
ACCELERATION	The Special 1 shot up to speed quickly, thanks to its spot-on gearing and aluminum clutch shoes.				
CORNERING ABILITY	The redesigned suspension geometry works very well.				
BUMP & JUMP HANDLING	The Special 1 was flat and composed through the whoops and rough sections.				
DURABILITY	The rear chassis brace's lower ball-style end popped off when the buggy bottomed out.				
RADAR TESTED TOP SPEED	45MPH*				
BEST BUYER	Competitive nitro buggy racers.				

* Top speed varies with equipment used.

SOURCES

AIRTRONICS (714) 978-1895; airtronics.net.

FUTABA distributed exclusively by Great Planes Model Distributors; futaba-rc.com.

GREAT PLANES MODEL DISTRIBUTORS (217) 398-6300; (800) 682-8948; greatplanes.com.

HOT MODS (909) 361-3579; fusionmotorsports.com.

KYOSHO distributed by Great Planes Model Distributors; kyosho.com.

PRO-LINE (909) 849-9781; pro-lineracing.com.

TEAM LOSI distributed by Horizon Hobby Inc. (800) 338-4639; teamlosi.com; horizonhobby.com.

TEAM ORION INC. (714) 694-2812; team-orion.com.

LIKES

- > Phenomenal handling.
- > Kyosho durability.
- > Tons of steering.
- > Full-option kit.

DISLIKES

- > Chassis brace's ball eyelets flex easily and pop off.
- > Phillips-head screws throughout; no hexes.

TEST GEAR



Hot Mods Novarossi Top T421B .21 engine

Jim Hottinger of Hot Mods tuned this Novarossi-based engine for me, and I knew it would be good. Jim has been tuning and modifying engines for more than 20 years, and he formerly worked for Paris Racing. The Top T421 .21 is a long-stroke engine with ABC construction. If you want a modified engine, give Jim a call at Fusion Motorsports; he modifies engines. But hurry up; he will surely have a waiting list.

Additional items used to complete the Kyosho Inferno MP 777 Special 1

Top 9853 tuned pipe

Team Orion Black Demon 30% nitro fuel

Team Orion 1200mAh receiver pack

Futaba S9351 servos (2)

Airtronics backlit M8 transmitter and receiver

Pro-Line Crime Fighter tires

Team Losi thick tire glue



tracktest >>>

1/10
SCALE **4WD COMPETITION NITRO TOURING CAR**
BY GEORGE M. GONZALEZ

FASTER FUSION



Schumacher Fusion R12 Team

SCHUMACHER LOYALS HAVE BEEN WAITING FOR A FUSION R12 KIT equipped with all the hop-ups and accessories that Paul Wynn and the rest of the Schumacher racing team use at major events in Europe and the USA. The wait is over: the R12 Team is loaded with aluminum-alloy components, including upper wishbones, front steering knuckles, rear hub carriers, engine mounts and suspension arm/shock tower mounts. The R12 Team also includes a heavy-duty front spool, a racing clutch and many more "Team" exclusives. Of course, the Standard R12's unique twin-belt drivetrain, engine braking system and Vari-Tune shocks are carried over to make the R12 a fully optioned ride. Time to take this British exotic through its paces.



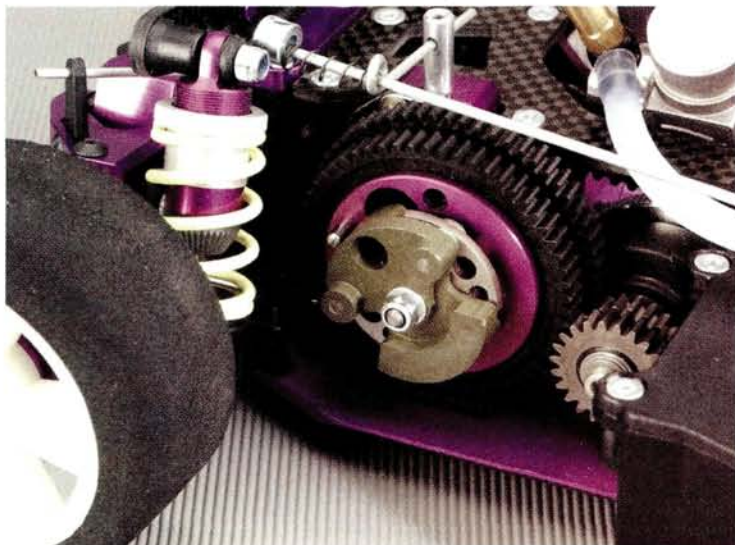
KIT FEATURES

CHASSIS. The drive train arrives installed on a 3mm-thick, purple-anodized-aluminum chassis plate. The chassis has cutouts for the fly-wheel, throttle servo, 2-speed spur gears and the front and rear diffs; this not only lowers the vehicle's CG, but it also reduces weight. All of the screw holes are countersunk for a smooth undercarriage, but the engine-mounting screws still protrude slightly; I'd prefer to see them all flush. The sides of the chassis are beveled to prevent it from scraping the track during hard cornering. The 2.5mm graphite upper deck is extremely narrow, but it bridges the gap between the front and rear bulkheads and provides a great deal of rigidity.

The radio box is extra roomy to accommodate a variety of electronics. There's room for flat pack or a hump-type 5-cell receiver pack and a full-size receiver and there's still room for a fail-safe device or a personal AMB transponder. The steering and throttle servos are installed on mounts molded into the side of radio box; remove a few screws and all of the electronics are in your hand. A foam body protector is wedged between the upper and lower bumper mounts and provides plenty of crash protection.

DRIVETRAIN. The R12 Team features a 2-belt system—not a typical 3-belt setup. A 7mm-thick belt connects the layshaft-mounted pulley to the rear diff, and a 3.5mm-thick belt wraps around the front and rear diff pulleys. A standoff machined in the flywheel provides a gap between the crankcase and flywheel that's wide enough for the front drive belt to pass through. A pair of ball-bearing belt guides provide the proper belt tension and prevent the belt from dragging on the chassis or binding with the upper deck. Rubber-sealed ball bearings are used throughout the rest of the drivetrain for smooth operation.

The rear ball diff has 12, 2.5mm-thick carbide diff balls for smooth, long-lasting performance. A front spool provides even power transfer to the left and right front wheels for improved on-power steering. Schumacher's famous blade-type universal-joint axles drive the wheels.



The 2-speed tranny is exposed, so it's super-easy to adjust. Use the locknut to adjust the engine-braking tension. Check out the clutch bell; the gears look as if they're installed backwards. Schumacher does things a little differently from us Yanks.

The plastic-blade parts of the drive shafts mate with the alloy diff out-drives instead of the more typical steel drive pins; this reduces friction and wear.

The R12 Team's 2-speed tranny has a hard-anodized-aluminum carrier block that supports two crescent-shaped drive dogs—one for shifting and the other for engine braking. The engine-braking drive dog stays engaged after the tranny has shifted gears, and it uses the drag created by the engine as a supplemental brake. Engine braking is completely adjustable to suit your needs; you can also lock it out completely if you like. The thick, vented-fiberglass brake rotor with steel calipers is there when you need to slow the vehicle down with more authority.

SUSPENSION AND STEERING. The R12 Team features the same race-proven lower A-arm/upper wishbone suspension as the Standard R12. The R12 Team, however, is equipped with many trick-looking aluminum components to strengthen it. The front and rear upper wishbones, arm mounts, front steering knuckles and rear hub carriers/toe-links are CNC-machined aluminum, and the purple anodizing looks great.

BUILDING & SETUP TIPS

The R12 Team arrives with the drive train built and installed on the chassis. This saves a lot of time, but you still have to install the suspension, the engine and the radio gear. The R12 Team includes the same well-illustrated instruction manual as the Standard R12 kit, but several supplemental sheets and updates are provided to help you install the exclusive Team components. Be sure to pay close attention to the instructions, and follow the supplemental instructions to the letter. My R12 Team went together without a glitch, but here are a few tips that will help you as you build.

LIQUID THREAD-LOCK. There are a lot of aluminum parts on this car that can vibrate loose if you don't put thread-lock on them. Put a drop of liquid thread-lock on all the machined screws that thread into metal.

CARBURETOR CLEARANCE. Depending on your engine, you might have to grind a notch on the graphite upper deck for carburetor clearance. The Novarossi mill dropped in without any fuss, but the gap between the carburetor base and the top deck is less than 1mm. If your carb binds against the upper deck, grind away a little deck material with a file or a Dremel Tool equipped with a sanding drum. All you need is a little wiggle room.

SUSPENSION SETUP. Set the car up according to Paul Wynn's setup sheet at the back of the instructions. This will save you a lot of setup time when you hit the track.

RECEIVER SHOCK PREVENTION. The radio box will accommodate 5-cell flat and hump-style packs. I recommend that you use a flat pack because it fits better and gives the lowest CG. Wrap the receiver in foam to protect it from vibration and shock.

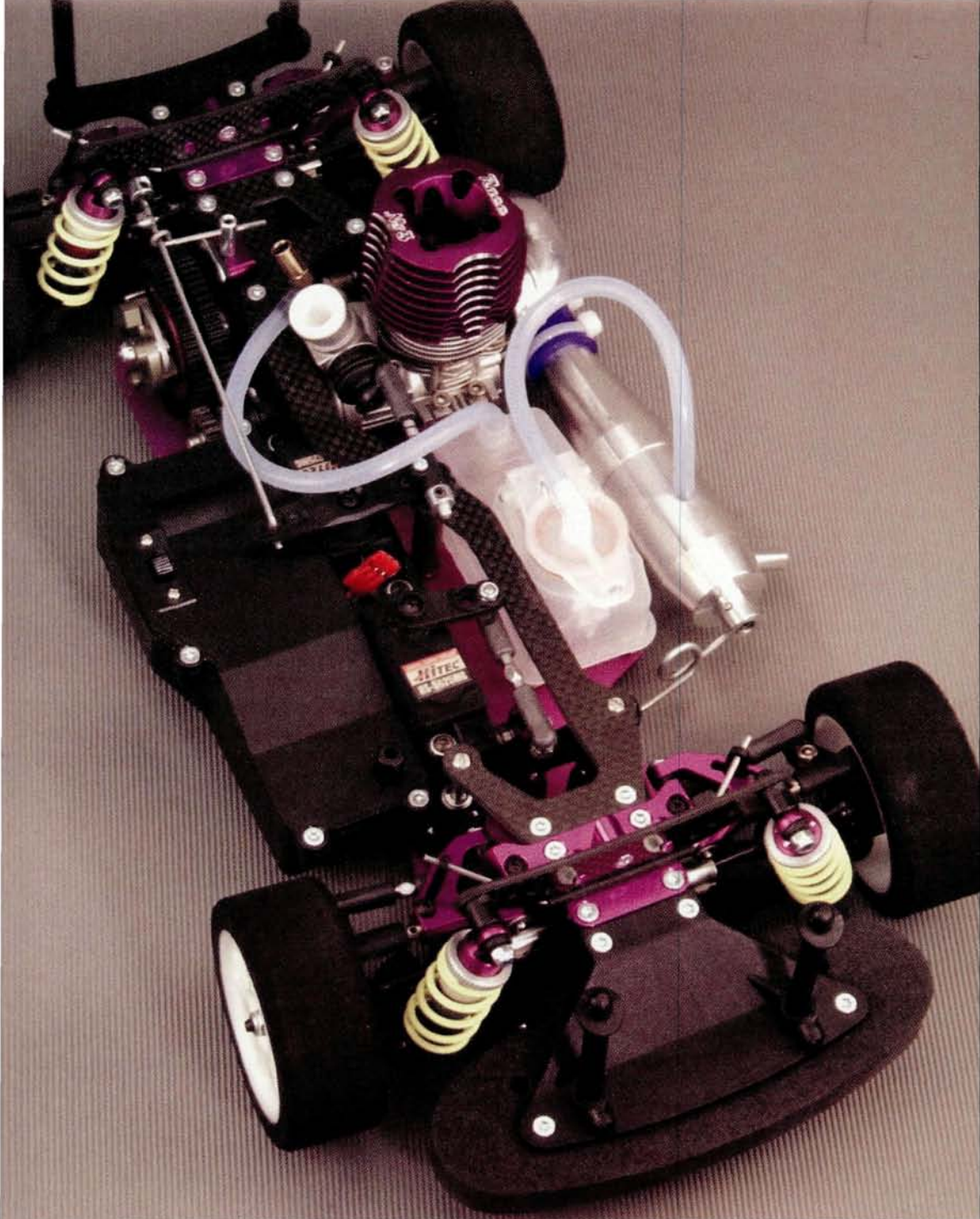
EASY RECEIVER-PACK CHARGING. The radio-box lid is secured with five screws, and that makes accessing the onboard pack a hassle. Install a switch harness with a charging jack to facilitate battery charging. Simply grind a notch on the radio box to allow the charging-jack wires to exit.

you'll need

- Radio system and batteries
- Steering and throttle servos
- Receiver battery pack and charger
- Fuel and fuel bottle
- Engine
- Starter box
- Glow igniter
- Body and paint
- Tires

THE COMPETITION

	CHASSIS	BALL BEARINGS	DRIVE AXLES (F/R)	2-SPEED	DIFFS	SUSPENSION	PRICE	REVIEWED
Team Associated FT Nitro TC3	2.7mm	Teflon-sealed	MIP CVD/MIP CVD	Yes	One-way/ball	Pivot-ball	\$369	08/04
HPI R40	3mm	Rubber-sealed	MIP CVD/MIP CVD	Yes	Gear	Pivot-ball	\$319	12/03
Mugen MTX-3	3mm	Rubber-sealed	Dogbone/dogbone	Yes	Gear	Pivot-ball	\$369	4/03 RC Nitro
Serpent 705	3mm	Rubber-sealed	Dogbone/dogbone	Yes	One-way/ball	Pivot-ball	\$379	8/03 RC Nitro
Schumacher Fusion R12 Team	3mm	Rubber-sealed	Universal/universal	Yes	Spool/ball	Double-wishbone	\$380	01/05
Trinity G4 Pro	3mm	Metal-shielded	Universal/universal	Yes	One-waygear	Pivot-ball	\$389	10/03



SPECIFICATIONS

MANUFACTURER Schumacher
MODEL Fusion R12 Team
SCALE 1/10
VEHICLE TYPE Competition 4WD touring car
PRICE \$380
Varies with dealer

DIMENSIONS

Wheelbase 10 to 10.2 in.
 (255 to 260mm)
Width 7.7 in. (195mm)

WEIGHT

Total, as tested 57.4 oz. (1,626g)

CHASSIS

Type Double-deck plate
Material (lower/upper) 3mm aluminum/2.5mm graphite

DRIVE TRAIN

Type Dual belt
Primary 20/26T clutch bell/48/54T spur gear
Transmission ratio 1.9:1
Final drive ratio (1st/2nd gear) 11.59:1/8.95:1
Driveshafts Schumacher Blade with plastic shaft and steel stub axle
Differentials (F/R) Spool type/ball type, 2.5 carbide balls
Bearing type Metal-shielded ball bearings

SUSPENSION

Type Lower A-arms with upper wishbones
Shocks Threaded-body aluminum

WHEELS

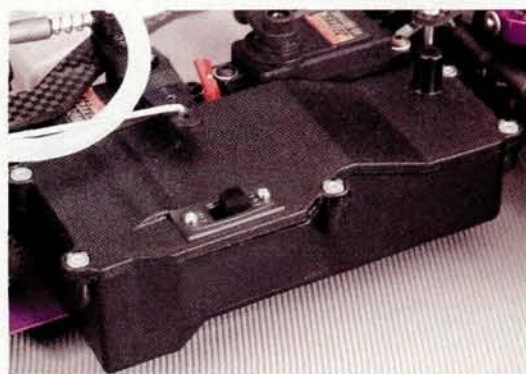
Type One-piece plastic dish

TIRES

Not included

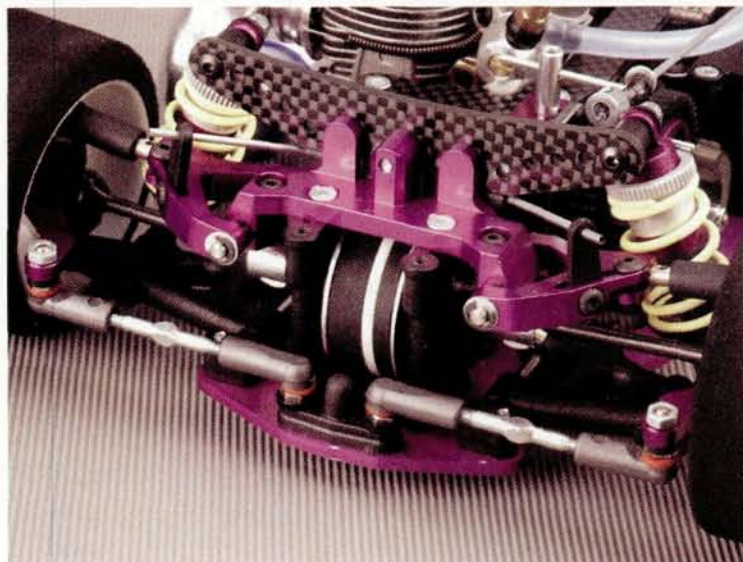
ENGINE & ACCESSORIES

Engine Not included
Clutch 2-shoe
Manifold Tubular, round-port
Pipe Machined-aluminum, dual-chamber



The radio box is super-roomy. Flat and hump-type receiver battery packs can be used, and there's plenty of room to accommodate a receiver of standard size. I ground a small notch on the side of the box and passed the charging jack wires through it.

The upper wishbones, suspension-arm mounts, shock-tower mount and rear hub carriers are CNC-machined aluminum for superior strength. Threaded-body aluminum shocks, graphite shock towers, blade-type universal drive shafts and a swaybar are standard. Look closely at the wide rear diff pulley and you'll see the two drive belts that are wrapped around it.





I'll never break the machined-aluminum steering knuckles, wishbones or arm mounts. The wishbone suspension is easy to adjust and maintain.

The lower arms have droop screws to adjust ride height, and the suspension-arm mounting blocks can be positioned to provide zero or 2 degrees of arm sweep-in (for the rear) and sweep-out (for the front). Steel turnbuckles are used to make camber adjustments. The front arms can also be slid forward by up to 4mm to adjust caster. Adjust rear anti-squat by putting washers under the forward arm mount; adjust front and rear toe-in/out by means of thick steel turnbuckles.

The R12 Team is equipped with ultrasmooth threaded-body aluminum shocks. The O-ring-equipped knurled-aluminum collars allow quick and

easy preload adjustment. The shocks use bottom-loaded shock cartridges and internal foam bobbins that provide volume compensation. They feature Schumacher's Vari-Tune shock pistons that allow damping adjustments without your having to change the shock fluid. Adjust damping by manually rotating the upper portion of the 2-piece pistons to the valve holes you want. The system works well, but it's a messy job, since you have to disassemble the shocks to get at the pistons.

The dual bellcranks are joined by an adjustable turnbuckle drag link that allows you to adjust Ackerman. An adjustable servo-saver that's built in to the left bellcrank protects the steering servo, while steel turnbuckles allow you to adjust front and rear camber and toe.

ENGINE AND ACCESSORIES. The Schumacher R12 Pro does not include a powerplant, but you get everything that's needed to install just about any rear-exhaust, slide-carb, non-pull-start engine. A clutch nut for standard-shaft engines, a light aluminum flywheel, an easy-to-install 2-shoe clutch, purple-anodized and finned engine mounts and an aluminum manifold and dual-chamber tuned pipe are included. A threaded 2-speed steel clutch bell, a pipe coupler, fuel line, a tuned-pipe spring and a racing-style fuel tank with a cap-mounted pressure tap and internal fuel filter complete the engine accessory package.

BODY, WHEELS AND TIRES. The R12 Team is a rolling-chassis kit and does not include a body or tires. It does come with 26mm dish wheels, and that's kind of odd, since foam tires are the norm in nitro touring car racing. The R12 Team has standard 12mm hex hubs and adjustable body posts, so it will accommodate most touring-car wheels and a 200mm-wide body. For testing, I set the R12 Team up with a Protoform Mazda 6 body and Arrows foam tires.

BUILT TO BASH

Yes...R/C Raven can make your truck look good enough to just sit it on a shelf. But doesn't that defeat the purpose of upgrading it in the first place? Besides, we don't manufacture our products from high grade materials just so they "look pretty". These hop-ups are designed to help your vehicle withstand the abuse that backyard bashing and extreme racing can dish out.

Log onto www.rcraven.com to see our entire product line that includes upgrades for the Savage, T & E-Maxxes, and more.

R/C RAVEN

NEW SAVAGE FULL ROLL CAGE and Triple Rate Springs

800-308-0055 fax 559-291-7011 Dealer Inquiries Welcome

www.rcraven.com

PERFORMANCE

I decided to test the R12 Team at Revelation Raceway in Montclair, CA. The large, permanent outdoor track has a long high-speed straightaway and a technical infield that's an ideal test bed for any racing chassis. I ran a few laps to get used to the track and then opened up the throttle and carved some lines. Right away, I noticed how quickly the R12 Team accelerated. The Novarossi engine packs a punch, and the R12 Team's efficient drive train certainly doesn't waste any of it. With all four Arrows tires locked to the pavement, the car made short work of Revelation's high-speed straight, and the high-output .12 had plenty of snap to slingshot the R12 out of corners.

I immediately became accustomed to the car's handling. Turn-in is very good at high speeds, and the car transitions through the switchback turns and sweepers with point-and-shoot accuracy. The front and rear swaybars help the car maintain a flat cornering attitude, and the spring rates are race-ready. Schumacher's suggested base setup was very well suited to the Revelation layout and surface, but the car did drift to the outside when coming out of the sharper corners. After finding the right approach, I didn't have any problems keeping a tight line. I could easily have dialed in more steering, but the car felt faster with the drift than it would have with a "tight" setup that scrubbed speed with too much traction.

I really like the feel of the car with the front spool installed. The spool provides equal power to both front wheels at all times—just like a one-way front diff, but the front spool is always engaged, so it retains the 4-wheel-braking effect that makes the car easier to drive. This is good for drivers who like to go into the corners hot and heavy and hit the brakes at the last possible second. Likewise, the "posi-traction" front end helps pull the R12 Team out of corners with authority. Once you've lined up the corner exit, just squeeze the trigger to the grip and hold on.

The engine-braking feature worked very well. I noticed that the car slowed a bit whenever I let off the throttle, and that was really helpful when preparing for corners. The system works like a drag brake, and the amount of braking action it provides is adjustable. It's well worth experimenting with this during practice, and it spares the disc-brake system, especially during long Mains. Of course, the primary stopping force comes from the R12's fiberglass brake rotor and steel caliper, which provided smooth, linear braking. Whenever I had to brake heavily, I noticed how smooth and easy to modulate the brakes were. Thanks to its smooth, efficient drive train and predictable handling, I had the R12 Team making good time around the track.

THE VERDICT

The R12 Team is a formidable weapon. I made good lap times even without exploiting its extensive tuning capabilities; it's always nice when box-stock settings really work. The R12 Team is loaded with all the Standard R12's race-proven features plus a host of aluminum-alloy components that increase durability and add to the car's exotic looks. Overall, I'm very impressed by the Fusion R12 Team.



RATING THE SCHUMACHER FUSION R12 TEAM

	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT
INSTRUCTIONS	Clear and concise text with great setup info.				
PARTS FIT & FINISH	Parts fit and finish are excellent, and the aluminum-alloy parts are finely machined.				
CORNERING ABILITY	Very good turn-in with a slight off-power push.				
ACCELERATION	The Novarossi NS-3 engine combined with the friction-free drive train yielded rocket-like acceleration.				
DURABILITY	The R12 Team is very durable; no damage or signs of wear after hours of running.				

RADAR-TESTED TOP SPEED 59MPH*

BEST BUYER Experienced nitro racers

*Top speed varies with equipment used.

SOURCES

ARROWS TIRES distributed exclusively by General Silicones Group, Inc. 626-338-3815, gsracing.com.

HITEC RCD (858) 748-6948; hitecrd.com.

NOVAROSS distributed by Mugen USA (949) 707-5607; mugenracing.com.

NOVAK (949) 833-8873; teamnovak.com.

OFNA (949) 586-2910; ofna.com.

PROTOFORM distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

SCHUMACHER USA (813) 889-9691; racing-cars.com.

TRINITY PRODUCTS (732) 635-1600; teamtrinity.com.

LIKES

- > Lots of aluminum and graphite goodies
- > Easy-to-adjust 2-speed
- > Roomy radio box
- > Smooth, blade-type universal dogbones

DISLIKES

- > Engine-mounting screws protrude through the bottom of the chassis

TEST GEAR



Hitec CRX transmitter

The R12 Team deserves a computer radio system to help you set up the steering, throttle and brake precisely. The Hitec CRX has all the adjustments racers need in an easy-to-program, affordable package. Features such as dual rate, endpoint and exponential are available on all channels, and the large LCD and easy-to-navigate menus make setup a snap. It also features 10-model memory, anti-lock brakes, channel mixing and many more useful features.

Hitec HS-5625MG servos

Mugen 1100mAh flat receiver pack

Novarossi NS-3 Turbo race engine

OFNA Chrome Top starter box

Trinity 25% Monster Horsepower fuel

Novak Xxtra FM receiver

Arrows foam tires



FAST \$400

HOW DEEP INTO RC DOES \$400 GET YOU

by the RC Car Action team

"DEAR RADIO CONTROL CAR ACTION, should I get an electric touring car or a nitro monster truck? P.S. I'm on a budget." You'd be surprised just how many letters we get like that from people who are totally up in the air about which type of vehicle to get and the type of power system it should have. Truck or buggy? Electric or nitro? Kit or ready-to-run? The one common dominator is cash flow—as in nobody wants it to flow out too much. So we decided to see just how far \$400 can take you when it's time to buy an RC vehicle. We hit all the major categories: buggies, touring cars, monster trucks and stadium trucks and crunched the numbers to see whether we could get a vehicle and all its support gear in each category—nitro and electric—for \$400 or less. Four bills turned out to be just enough for some categories, and more than enough in others. Check out the gear we got. How will you spend your bucks?

"PRICES VARY WITH DEALER"

Indeed they do. We wanted to make sure that our pricing was consistent, so we grabbed the prices shown here from the Tower Hobbies and Horizon Hobby websites. Your local dealer may charge more, but remember, you don't pay shipping if you buy locally!

PHOTOS BY PETE HALL

RADIO CONTROL
car action



JOHN'S PICK

DuraTrax Evader BX

When it comes to getting the most for your money, it's hard to beat a good entry-level RTR electric buggy. For my pick, I went with the DuraTrax Evader BX. I chose the buggy because of its high-quality equipment and low price (\$170). It also comes with a one-year Stress-Tech Guarantee. (That means if a plastic part gets broken, DuraTrax will replace it for free.) At less than two bills, I have more than enough cash left to buy plenty of replacement parts, accessory items and some well-placed hop-ups. In the end, I was able to get the car, three good stick packs, a competition stock motor, tires, a decent peak charger, some tools, plenty of spare parts and some shock fluid for fine-tuning the suspension damping.



HOW I SPENT MY \$400

DuraTrax Evader BX

\$170

WHAT YOU NEED	I GOT	PRICE
Stick pack	Epic 3000 NiMH Sport	\$19
Charger	MRC Super Brain	\$50
Total with kit		\$239



HAD ENOUGH LEFT OVER FOR

Additional Epic 3000 NiMH Sport packs (2 @ \$19 each)	\$38
Epic Binary Outlaw Stock motor	\$30
Pro-Line Step Pin tires	\$12
Pro-Line tire glue	\$8
Spare front and rear arms	\$9
Spare front and rear shock towers	\$8
Spare spur gear	\$3
Differential rebuild kit	\$7
Differential gear	\$4
DuraTrax 10-piece metric tool set	\$25
Trinity shock fluid (25- 30- & 35WT @ \$4 each)	\$12
Grand Total	\$395

WHERE THE MONEY WENT

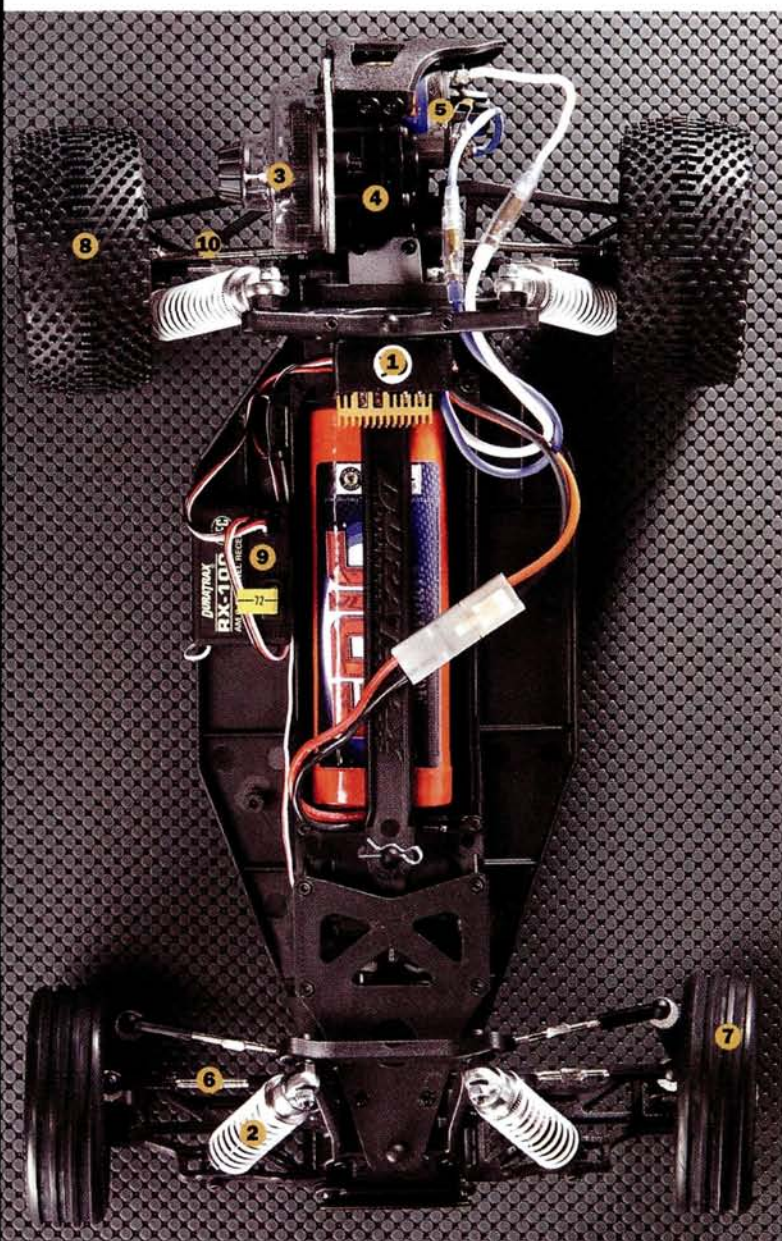
High-quality charger. Going electric? Don't skimp on the charger. Instead of the cheapest timer unit, I upgraded to an MRC Super Brain peak charger. Peak chargers automatically shut down when the battery is fully charged.

Track-ready tires. The Evader's stock tires are good for playing around in the backyard, but they'll wear out eventually. I grabbed some extra rollers from Pro-Line Racing for when that time comes. Pro-Line's Step Pins are equally at home on loamy tracks and in the backyard.

More batteries! If you get an electric vehicle, it's wise to get more than one battery pack. Since I was well under budget, I bought three Epic 3000 stick packs. There are plenty of other basic sport packs available, but at \$19, it's hard to beat a pack sportin' 3000mAh.

Hotter motor. The stock kit motor is good to start out with, but if you want more speed, a good competition stock motor will provide more punch. The Epic Binary Outlaw stock motor is a ROAR-legal, 27-turn motor, so you can race with it if you want to hit a track.

Tools & spares. With my left over money, I purchased this handy DuraTrax tool kit. It comes with four screwdrivers (two flat-blade and two Phillips), 1.5mm, 2mm and 2.5mm hex drivers, 4mm, 6mm and 7mm nut drivers and a roll-up fabric storage case. I also picked up a bunch of spare parts. DuraTrax's Stress Tech Guarantee is great, but I prefer to have spares at the ready.



QUICK SPECS

DuraTrax Evader BX
Price \$160

Includes AA batteries, Futaba-built radio gear, DuraTrax Sprint speed control, 20-turn Photon motor, factory-finished body

BIG FEATURES

1. DuraTrax Sprint reversing ESC
2. Threaded aluminum shocks
3. Slipper clutch
4. Adjustable ball differential
5. 20-turn Photon motor
6. Steel turnbuckles
7. Standard, racing-size 2.2-inch wheels
8. Track-friendly tires with foam inserts
9. DuraTrax by Futaba radio gear
10. Universal-joint axles

JASON'S PICK

OFNA Ultra LX Comp

There aren't many—if any—other 1/8-scale buggies that come with a ton of features and yet cost as little as OFNA's Ultra LX Comp. It's one of OFNA's bestsellers because it offers so much to the guy who wants to save more than a few bucks. For just three bills, the Comp features threaded aluminum shocks, a cool factory-finished body, anodized-blue aluminum hardware everywhere and a Force .26 engine. OFNA even throws in a dry-cell glow igniter and fuel bottle. Who wouldn't want to take home one of these bad boys?



HOW I SPENT MY \$400

OFNA Ultra LX Comp \$299

WHAT YOU NEED	I GOT	PRICE
Fuel (1 qt.)	DuraTrax Red Alert	\$7
8 AA batteries	Generic	\$5
D battery	Generic	\$3
Total with kit		\$314



HAD ENOUGH LEFT OVER FOR

Hitec HS-645MG high-torque servo	\$40
OFNA rechargeable receiver pack	\$20
Traxxas Revo charger (1A output)	\$30
Grand Total	\$404



WHERE THE MONEY WENT

Stronger steering servo. Big 1/8-scale buggies require serious grunt to crank the wheels in either direction. The stock servo puts out 75 oz.-in. of torque, and that works OK for play, but hitting tight corners on a track requires more power. Hitec's HS-645MG servo puts out a whopping 133 oz.-in. of torque, and that really wakes up the big buggy's handling.

Rechargeable receiver pack. You could save a few bucks and use alkaline AA batteries to power the Ultra's receiver, but feeding that habit adds up quickly (especially after you install a stronger steering servo). OFNA's 1400 NIMH pack has the largest capacity available, and you can charge it again and again.

Receiver battery charger. There are cheaper and slower chargers out there, but the unit Traxxas includes with the Revo charges at 1 amp, and that means my OFNA 1400 NIMH pack will charge in only 1½ hours instead of overnight.

QUICK SPECS

OFNA Ultra LX Comp
Price \$299
Includes Airtronics radio gear, Force .26-size engine, fuel bottle, glow starter, glow plug

BIG FEATURES

1. Force .26 engine
2. Threaded-body aluminum shocks
3. 145cc fuel tank
4. Preglued "Bones" tires
5. Laydown steering servo
6. 4mm hard-coated aluminum chassis
7. Hardened-steel spur gear
8. Sealed radio box
9. Anodized-blue components
10. Front and rear dual-disc brakes

JASON'S PICK

Traxxas E-Maxx

The E-Maxx shares most of its DNA with the legendary T-Maxx, but it's much less expensive than its sibling. It's also the best-performing electric monster available and is a perfect fit for a \$400 budget. The E-Maxx rides on 8 fluid-filled shocks and hits speeds in the mid-30mph range, thanks to its 2-speed transmission and dual-motor, dual-battery power system that unloads 14.4 volts into a pair of 550 high-torque motors. Other worthy features include a full set of ball bearings, full-time 4WD, a factory-finished body and a Traxxas TQ radio system. This mother-trucker isn't shy when it comes to getting dirty and will hit off-road areas as hard as its nitro counterparts. Electric power doesn't get more hairy than this!



HOW I SPENT MY \$400

Traxxas E-Maxx \$300

WHAT YOU NEED	I GOT	PRICE
Stick packs (2 @ \$17 each)	Team Orion	\$35
Charger	Dynamite Twin Peaks	\$70
8 AA batteries	Generic	\$5
Total with kit		\$410



HAD ENOUGH LEFT OVER FOR

I'm broke.

Grand Total \$410

WHERE THE MONEY WENT

Dual-pack charger. I didn't go the "cheap" route on the charger because I wanted a unit that can charge two packs simultaneously; waiting for a pair of packs to charge back-to-back is way too much downtime for me. So, I went with a Dynamite Twin Peaks charger. I don't have to worry about the batteries over-charging because the peak-detection software will shut off when the batteries are fully charged, and I'll spend more time driving instead of waiting for batteries to charge.

A pair of packs. The E-Maxx requires two stick packs, so I decided to use Team Orion's Super Duty Plus 3000mAh cells because they will give me plenty of run time. The battery packs are sold in pairs for less than 35 bucks, so they didn't hurt my wallet as much as buying similar packs individually would have.

QUICK SPECS

Traxxas E-Maxx

Price \$299

Includes Traxxas radio system, Twin Titan 550 motors, painted and cut-out body, Novak-built EVX 14.4V reversing speed controller.

BIG FEATURES

1. Titan 550 motors
2. Independent, 8-shock suspension
3. Chevron-tread T-Maxx tires
4. Novak-built, 14.4V Traxxas EVX reversing speed control
5. 2-speed, transmitter-operated transmission
6. Accepts stick or side-by-side packs
7. Sealed receiver box
8. Plastic semi-tub chassis
9. High-torque steering servo
10. Adjustable slipper clutch

ACER Racing

Happy New Year!

IFMAR World Champion
Ceramic Nitride Pro Series
Balls & Bearings for:
Associated*Losi*Kyosho
Tamiya*HPI*GS*Schumacher
TRAXXAS*X-Ray*Yokomo
Mugen*OFNA*Serpent
Trinity*Atlas*Hot Bodies
& MORE!

NEW! Tamiya Evo IV, Mugen MRX4
and Schumacher mi2 bearing kits

FREE AIR SHIPPING TO
ANYWHERE IN THE WORLD!

THE FASTEST
THE LIGHTEST
THE SMOOTHEST
THE HARDEST
...BALLS IN THE INDUSTRY.

ORDER ONLINE 24 HOURS
DIRECTLY FROM

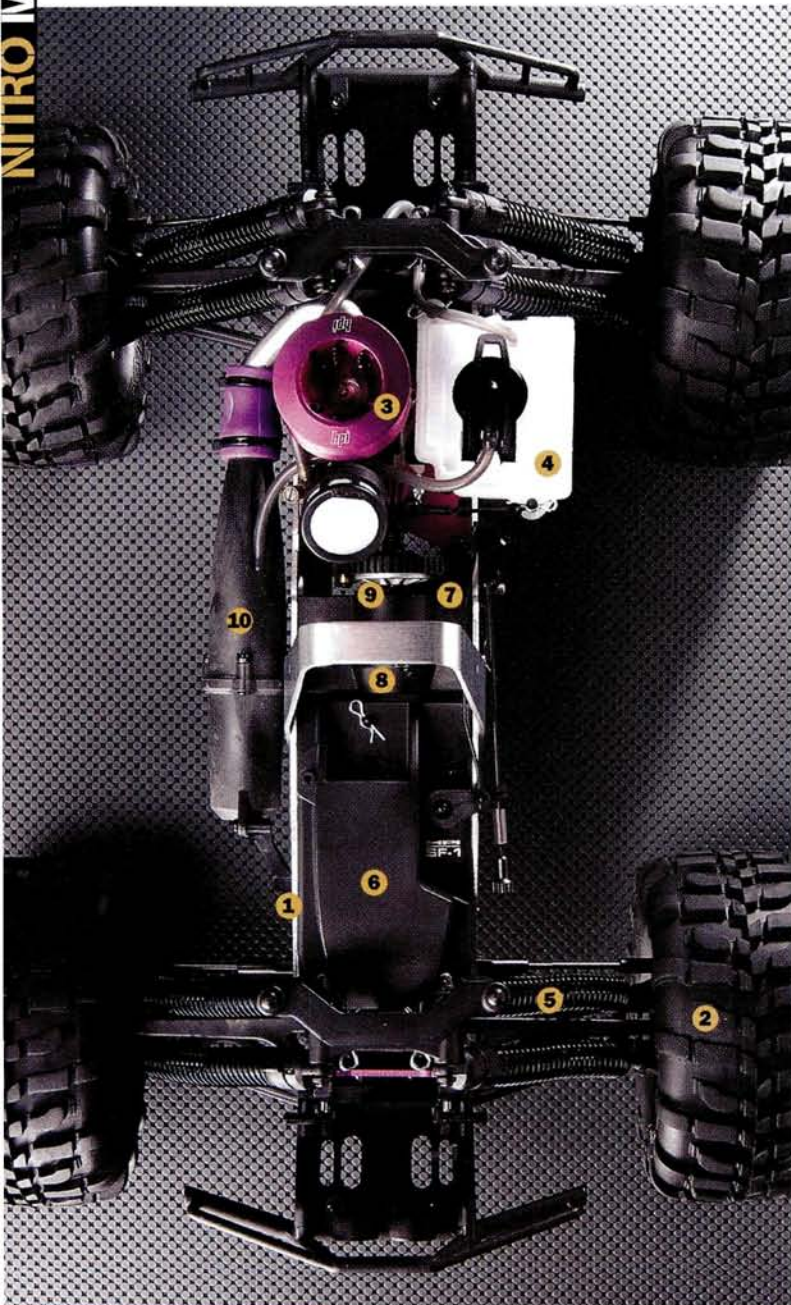
www.acerracing.com



JOHN'S PICK

HPI Savage 25 RTR

When it comes to nitro-powered monster trucks, HPI Racing's Savage is one of the best out there. It has a powerful shaft-start .25 engine, 2-speed tranny, super-supple 8-shock suspension, high-torque steering servo and a killer-looking painted body. There's only one problem: it costs \$400, so you'll have to step slightly over budget (insert annoying failure-buzzer sound here). No problem; just pirate the necessary AA batteries from the various remotes around your house, and postpone that swanky dinner with the hottie in algebra (or the chick in accounting; I have no idea how old you are) in order to get a glow starter and fuel.



QUICK SPECS

HPI Racing Savage

Price \$400

Includes HPI Racing TF-4 27MHz AM radio, Nitro Star S-25 engine, Roto Start system, factory-painted body

BIG FEATURES

1. Twin Vertical Plate (TVP) aluminum chassis
2. 6.25-inch-diameter tires
3. HPI .25 engine with shaft-start
4. 160cc fuel tank
5. Independent 8-shock suspension
6. Enclosed electronics
7. 49-tooth plastic spur gear
8. 2-speed transmission
9. Externally adjustable slipper clutch
10. Composite-plastic, dual-chamber tuned pipe



HOW I SPENT MY \$400

HPI Savage 25 RTR \$400

WHAT YOU NEED	I GOT	PRICE
Glow starter	DuraTrax Rapid Heat	\$15
Fuel (1 qt.)	O'Donnell 20%	\$8
AA batteries	Stolen from remotes	Free
Total with kit		\$423



HAD ENOUGH LEFT OVER FOR

Unfortunately, nothing. I'm \$23 in the hole!

Grand Total \$423

WHERE THE MONEY WENT

Glow starter and charger. A nitro machine goes nowhere without a glow starter. The DuraTrax Rapid Heat has a Sanyo sub-C cell and uses the preferred "twist-and-lock"-style connector for a secure connection. It comes with a trickle-charger that will bring it up to a full charge in 10 hours.

Fuel. We've used O'Donnell fuel regularly with great success, but since I went over budget, I'm only putting in for a quart. The fuel has won multiple ROAR and international championships, so I know I can trust it to power my Savage.

PETE'S PICK

Team Losi Triple-XT Sport II

If you want to get a whole lotta truck (and truck stuff) for \$400, Team Losi's Triple-XT Sport II is a great way to do it. For a mere \$270, the Sport II features a JR Racing XR2i computer radio with a high-torque Z590M servo and all the racing features of and complete parts compatibility with Team Losi's kit-spec Triple-XT racing truck. The latest "II" version adds a Trinity rebuildable 19-turn motor, chrome wheels and a new ESC built just for Losi by Team Novak to the potent mix. Good stuff.



QUICK SPECS

Team Losi Triple-XT Sport

Price \$270

Includes XR2i radio system, Z590M steering servo, Novak-built speed control, factory-painted body

BIG FEATURES

1. Hard-anodized shocks
2. Novak-built reversing speed control
3. Steel turnbuckles
4. Trinity 19T motor
5. JR Racing Z590M steering servo
6. JR Racing XR2i radio system
7. 3-gear transmission with ball differential
8. Slipper clutch
9. Track-ready tires
10. Universal-joint drive axles



HOW I SPENT MY \$400

Team Losi Triple-XT Sport

\$270

WHAT YOU NEED

Stick pack (2 @ \$25 each)

Charger

8 AA batteries

Total with kit

I GOT

Dynamite 3000

Novak Ionic

Generic

PRICE

\$50

\$70

\$5

\$395



HAD ENOUGH LEFT OVER FOR

A spare set of AAs

Grand Total

\$5

\$400

WHERE THE MONEY WENT

High-capacity batteries. I was looking for a bargain in the battery department, since more batteries equal more track time, and the greater the packs' capacities, the better. Dynamite's 3000mAh packs are a steal at \$25 each, and they have enough run time for entry-level racing.

Peak charger. There are less expensive chargers out there, but Novak's AC/DC Ionic is still a bargain at \$70. I don't mind paying a little extra for reliability, and if it's orange and says "Novak" on it, it's reliable. Plus, it has adjustable amp rates, NiMH and Ni-Cd modes, and since it can handle 4 to 8 cells, it can charge just about any type of battery in RC—including receiver and transmitter packs.

MATT'S PICK

XTM X-Cellerator RTR

I wanted to find a nitro stadium truck that would be equally at home running laps at the track and bashing around my backyard. A nitro truck with real race-ability could quickly eat up your RC budget, but XTM's X-Cellerator manages to offer everything you need in a race machine and still be a bargain. At only \$260, this truck offers a truly race-worthy design and still leaves me with enough cash-ola left over for a healthy supply of extras. XTM played it smart with the X-Cellerator; it didn't set out to reinvent the wheel. Instead, it stuck with proven design concepts and delivered a truck that simply works great without costing a ton. Sounds like my kind of truck.



HOW I SPENT MY \$400

XTM X-Cellerator RTR

\$260

WHAT YOU NEED	I GOT	PRICE
12 AA batteries	Generic	\$7
Fuel (1 gal.)	Sidewinder Cool Power Race	\$18
Fuel bottle	Venom 500cc bottle	\$8
Glow starter	XTM Racing glow starter and charger	\$25
Total with kit		\$314



HAD ENOUGH LEFT OVER FOR

Team Losi T-Bone tires	\$18
Team Losi dish rims	\$7
Trinity Final Solution after-run oil	\$6
Race fee	\$10
Fox Hot Car spare glow plugs (3 @ \$4 each)	\$12
Trinity Nitro Hauler	\$20
All-you-can-eat buffet	\$11
Grand Total	\$402

WHERE THE MONEY WENT

The essentials: fuel and a glow-starter. Sidewinder offers three fuel blends: Backyard Basher, Race and Pro-Race. Each grade differs in the amount of lubricant it contains; Backyard Basher has the most and Pro-Race has the least. Since I plan to occasionally hit the track, I went down the middle with the Race blend. To fire up the X-Cellerator, I selected XTM's glow-starter kit; it's rechargeable and includes a charger. Best yet, it has a built-in meter so you don't have to find out the hard way that your glow-starter battery is dead.

Race tires. I know from experience that at the track, the only thing that holds the X-Cellerator back is its stock rubber. The tires are fine for the backyard, but they don't offer enough traction on most tracks. To up the grip, I swapped in a set of Team Losi T-Bone tires. I selected the stickier red compound; it will wear faster, but the X-Cellerator will be on rails.

Racing stuff. Since I plan to race, I wanted to pick up a few extras. To keep my full-size car's back seat clean, I selected DuraTrax's field bag. It's big enough to hold the X-Cellerator and all of my gear. Extra glow plugs are good to have whether you race or not, and I didn't want an entire day at the track ruined because I didn't have a \$4 part. I bought two extras; one's a spare, and the other goes in for the Main. Last, the race fee set me back another \$10.

All-you-can-eat buffet (aka fat-guy heaven). No matter how badly I might have done on race day, a trip to the local buffet can always put a smile on my face. Memories of tanking in the A-main (oh, the pressure) are so quickly erased by the joy of piles of General Tso's chicken.

QUICK SPECS

XTM X-Cellerator RTR

Price \$260

Includes Hitec Aggressor radio gear and factory-finished body

BIG FEATURES

1. 3mm-thick aluminum chassis
2. Sealed radio box
3. Adjustable slipper clutch
4. Universal-joint rear axles
5. Threaded shock bodies
6. Low-center-of-gravity gearbox
7. Ball differential
8. Turnbuckle upper-camber links
9. XTM .18 engine with pull-starter
10. Aluminum tuned pipe

MATT'S PICK

Tamiya TB-02

I wanted a touring car that would be capable of double duty; I'm talking about a TC that would be durable enough to rip up and down my street all day Saturday and yet still be engineered well enough to hit the track on Sunday. For that, Tamiya's TB-02 was the perfect choice. Its plastic-tub chassis can take a serious beating, and the shaft-drive design requires virtually zero maintenance. The chassis shares the same platform as Tamiya's high-end Evo III, and although the TB-02 might not have the pro-racer look of graphite and aluminum bling, it has all the chassis adjustability a racer needs. It also comes with the gear that counts, such as full ball bearings and fluid-filled shocks. As a matter of fact, the TB-02 is really more than the cross trainer I'm looking to use it as. If you aren't impressed by glam, this is a perfect race machine.



QUICK SPECS

Tamiya TB-02

Price \$160

Includes Clear body and decal sheet, 540 sealed-can motor, tires, foam inserts, wheels, pinion gear, three spur gears

BIG FEATURES

1. Plastic-tub chassis
2. Aluminum driveshaft
3. Full ball bearings
4. Ball differentials (front and rear)
5. Bellcrank steering system
6. Plastic-body shocks
7. Accepts side-by-side cells and stick packs
8. Adjustable steel turnbuckles
9. Sealed gearboxes
10. Vertical front-camber-link mounting points



HOW I SPENT MY \$400

Tamiya TB-02

\$160

WHAT YOU NEED

I GOT

PRICE

Battery	Reedy Rated-X	\$45
Radio system with ESC	Hitec Aggressor AM	\$77
Charger	Pro Max Activator	\$50
8 AA batteries	Generic	\$5
Paint	Tamiya Color	\$5
Total with kit		\$342



HAD ENOUGH LEFT OVER FOR

Reedy MVP stock motor	\$25
Extra Reedy Rated-X battery pack	\$45
Grand Total	\$412

WHERE THE MONEY WENT

Radio gear. The Hitec Aggressor line has to be one of the absolute best buys in RC radio, so to control the TB-02, I chose the 2-channel AM version that includes an HS-311 servo and an EZX-R ESC. The specs on the EZX-R allow it to be more than up to the task for racing; it also has reverse, and that will come in handy when I play in the street.

Batteries. I wanted race-quality matched packs, but I didn't want to have to assemble a bunch of loose cells. With Reedy's Rated-X pack, I know exactly what I'm paying for because I can see the label through the clear shrink-wrap. The Rated-X packs use genuine Panasonic 3000 NIMH cells that receive the same cycling, matching and voltage treatment as Reedy's world-championship-winning cells.

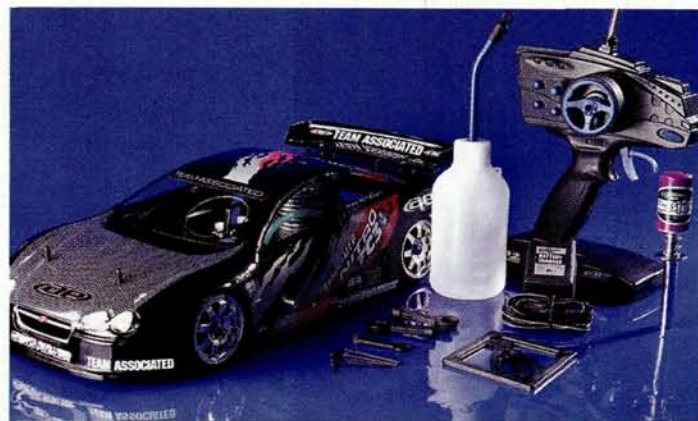
Charger. The Activator may look basic, but when it comes to features, it delivers. Its best feature is that it's AC/DC. Just plug it into the wall, and its amp rate is adjustable up to 6 amps; that's more than enough for racing. This charger is also easy to use—just push a button and go. Best of all, it's got a superlow price.

Race motor. The TB-02's included silver-can motor is great for someone learning to drive, but it was never intended as a race motor. I swapped in a Reedy MVP. This motor has a good balance of speed and power and is completely rebuildable. Geared correctly, this motor is as fast as any in the stock class.

PETE'S PICK

Associated Nitro TC3 RTR Plus

If you want a nitro tourer, \$400 will go a long way, especially if you get a high-value car such as Associated's Nitro TC3 RTR Plus. The Plus version adds tuner-style bodywork and chrome wheels to a package that's already loaded with good stuff that includes a 2-speed tranny, .15 engine and fully adjustable suspension. Basically, it's Associated's race-winning TC3 kit car with a few cost-saving tweaks, such as plastic-body shocks (instead of aluminum) and shielded ball bearings (instead of steel). It's a great way to get started in racing, and a more than capable play machine.



HOW I SPENT MY \$400

Associated Nitro TC3 RTR Plus \$300

WHAT YOU NEED	I GOT	PRICE
Fuel (1 gal.)	White Lightning	\$20
12 AA batteries	Generic	\$7
Total with kit		\$327



HAD ENOUGH LEFT OVER FOR

Ace receiver-battery charger	\$16
Trinity Nitro Metal Hydride receiver pack	\$28
O.S. no. 8 glow plug (3 @ \$6 each)	\$18
Associated air-filter oil	\$3
Associated thread-lock	\$4
Hobbico after-run oil	\$3
Grand Total	\$399



WHERE THE MONEY WENT

Rechargeable receiver pack and charger. Alkaline batteries are good for transmitters, but they aren't very good to use for receiver power. They're fine when new, but they quickly go "soft," and servo performance suffers. So, the bulk of my extra cash went to a rechargeable upgrade. Trinity's 1100mAh pack lets you run all afternoon, and after you've finished for the day, Ace's inexpensive wall charger will juice the pack up for tomorrow's parking-lot 500.

Nitro essentials. Ah, the little (but important) things every nitro guy needs. First up is air-filter oil; it isn't a lubricant but actually a sticky goo that traps dirt and grit. Associated ships the TC3's air filter dry, so this stuff is a must-buy if you want the air filter to actually do any filtering. Spare glow plugs are next; you'll need 'em, so get some. O.S. Engines' no. 8 model is always a good choice. After-run oil protects the engine's internals from corrosion between runs, and thread-lock prevents the screws from loosening. If you find a loose screw, take it out, put a drop of thread-lock on and reinstall it.

QUICK SPECS

Associated Nitro TC3 RTR Plus

Price \$300

Includes Jaguar radio system, camber/toe-in gauge, molded tool set, rechargeable Thunder Tiger glow starter, fuel bottle

BIG FEATURES

1. Associated .15 pull-start engine
2. Tubular manifold and aluminum tuned pipe
3. 2-speed transmission
4. Pebble-proof shaft-drive 4WD
5. Pivot-ball suspension
6. CV-style drive axles
7. V-tread tires with foam inserts factory-glued to chrome wheels
8. High-performance disc brake
9. Enclosed receiver box
10. 2.5mm blue-anodized aluminum chassis



HEAD TO HEAD TRAXXAS REVO VS IS THE REVO REALLY BETTER?

It's tough out there. At last count, no less than 10 trucks were looking for a piece of the nitro-monster pie (and there are even more on the way), so picking one truck to do battle with the Traxxas Revo wasn't easy. But the more we thought about it, the more we realized that the Revo's biggest competition is right under the same warehouse roof at Traxxas HQ: the T-Maxx. After all, the T-Maxx has won every *RC Car Action* shootout and head-to-head it has been in. If the Revo is going to battle any other truck, it should be the truck that already beat 'em all (with the exception of the LST and Genesis, and we're working on that). So is the Revo really better or just different?

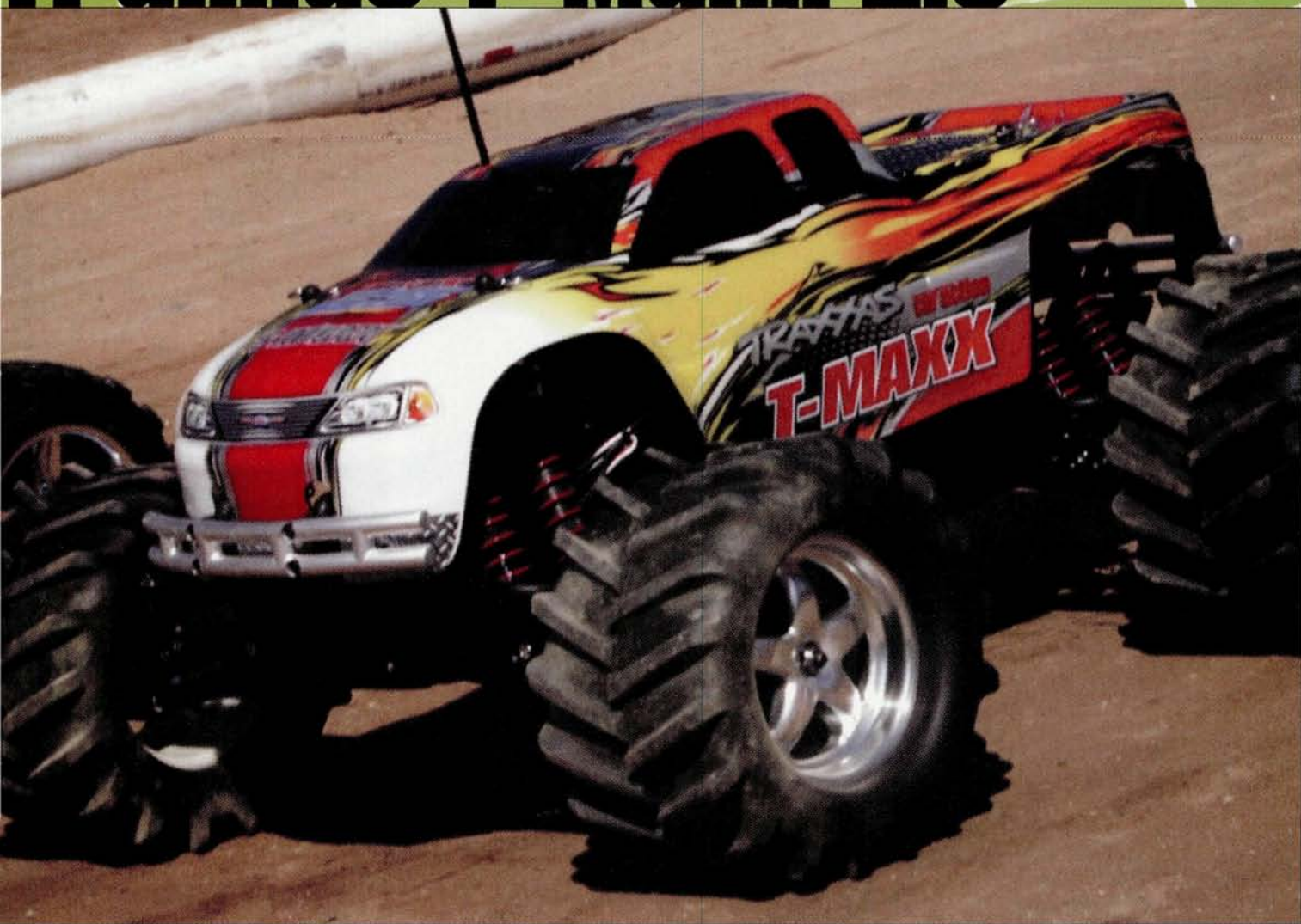
It's monster-sibling-rivalry time!



BY THE RC CAR ACTION TEAM

PHOTOGRAPHY BY PETE HALL

Traxxas T-Maxx 2.5



REVO

It's our 2004 Truck of the Year, and Traxxas' vision of the ultimate monster. Although there's a lot to like in terms of performance features, there's also much to be said for the features that simply make the Revo easy to get along with. The integrated rechargeable receiver pack (with included charger!) is a huge bonus, and the rubber-sealed pivot balls and drive axles are inspired maintenance-decreasing touches. And when it finally does need some wrenching, the Revo comes apart with less hardware and a lot less time than most other monster trucks.

TRAXXAS REVO

Features

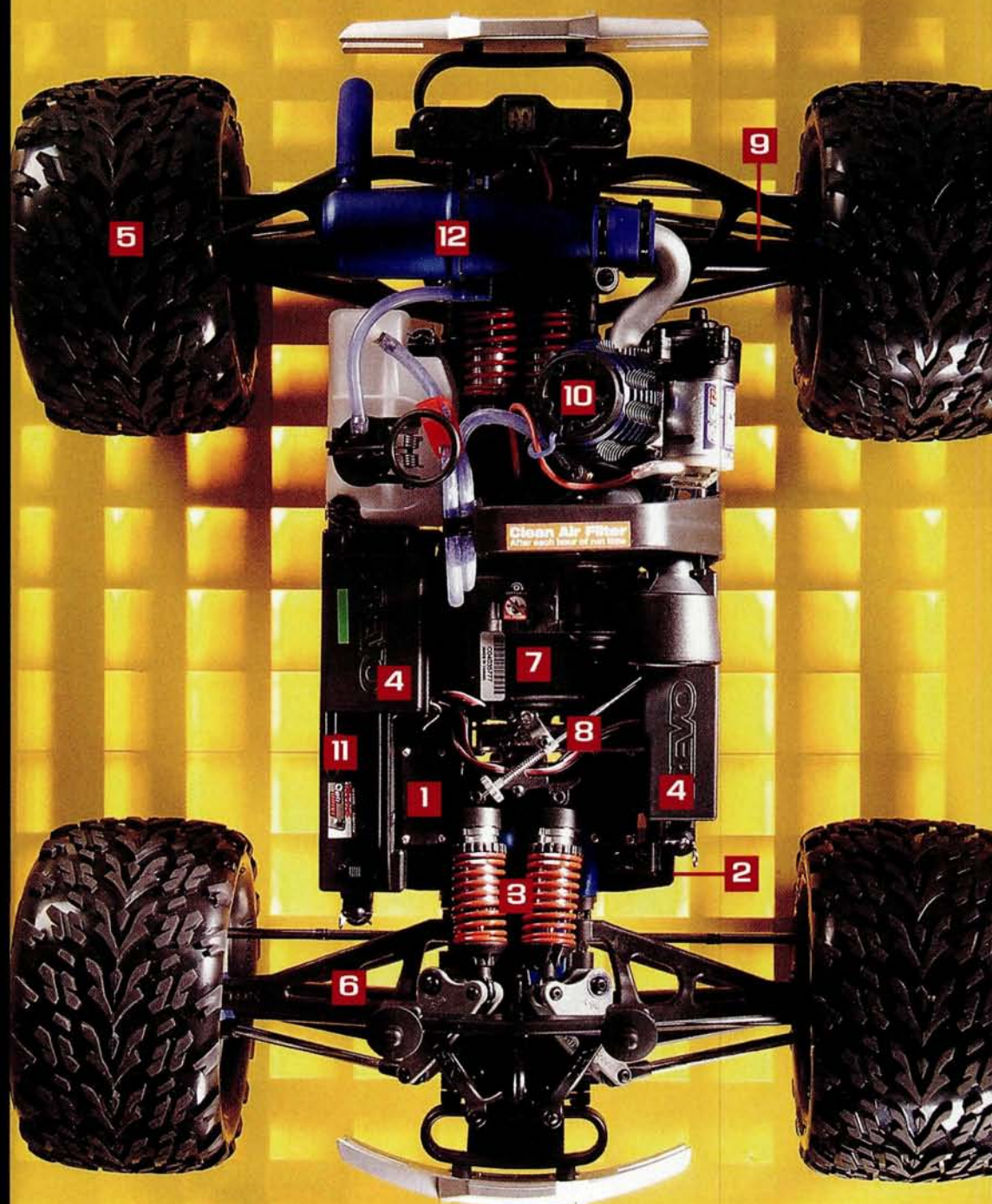
- 1 Dual steering servos
- 2 Monocoque-style 3mm aluminum chassis
- 3 Inboard, rocker-actuated aluminum-body shocks
- 4 Sealed radio boxes with integrated charging jack
- 5 Factory-glued, low-profile tires with captured beads
- 6 Rubber-sealed, pivot-ball suspension
- 7 2-speed reversing transmission
- 8 Steel disc brake with heat-sink calipers
- 9 Rubber-sealed, 18mm universal-joint drive axles
- 10 TRX 2.5 engine with EZ-Start electric starting
- 11 Optidrive electronic reverse system
- 12 Aluminum tuned pipe

Included accessories

- > EZ-Start 2 controller
- > Tuning DVD
- > Full-color manual
- > AC/DC receiver-battery charger
- > 5-cell NiMH receiver pack
- > Precut decals
- > ProGraphix trimmed and mounted body

Required accessories

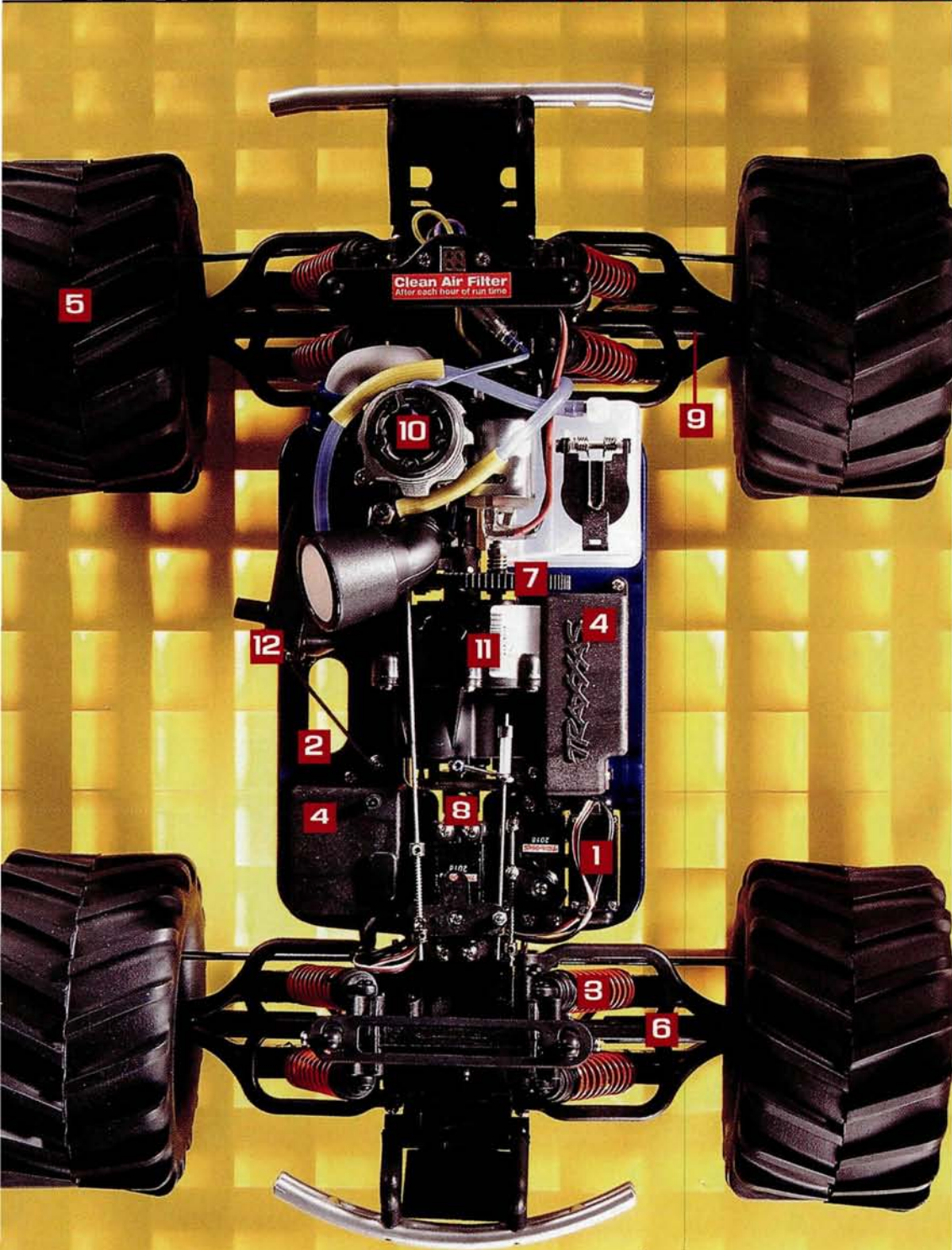
- > Fuel
- > Fuel bottle
- > 8 AA batteries (for transmitter)
- > Stick pack (for EZ-Start 2)
- > Charger for stick pack



T-MAXX

Ah, the mighty Maxx—the truck that made nitro monsters the biggest RC category of the 21st century. It defined the high chassis/8-shock standard and blew away the notion that only big-block power was muscle enough for a monster truck. The Revo is Traxxas' latest big-wheeler, but it isn't a replacement for the Maxx, which is as potent as ever since its upgrade to TRX 2.5 power. The T-Maxx is also the reigning king of aftermarket upgradeability with literally hundreds of dress-up and go-fast parts waiting for you on dealers' shelves.

Traxxas T-MAXX 2.5



Features

- 1 High-torque steering servo
- 2 3mm plate-aluminum chassis
- 3 8 plastic-body shocks
- 4 Enclosed radio boxes
- 5 Chevron-tread factory-glued tires
- 6 Pivot-ball suspension
- 7 Slipper clutch
- 8 Fiberglass disc brake
- 9 12mm universal-joint drive axles
- 10 TRX 2.5 engine with EZ-Start 2 electric starting
- 11 2-speed reversing transmission
- 12 Composite-plastic tuned pipe

Included accessories

- > EZ-Start 2 controller
- > Tuning DVD
- > Full-color manual
- > Precut decals
- > ProGraphix trimmed and mounted body

Required accessories

- > Fuel
- > Fuel bottle
- > 8 AA batteries (for transmitter)
- > 4 AA batteries (for receiver) or rechargeable receiver pack
- > Stick pack (for EZ-Start 2)
- > Charger for stick pack

FEATURES, SPECS & TUNING COMPARISON

	REVO	T-MAXX
Maximum ground clearance	4 in. (102mm)	4 in. (102mm)
Width	16.13 in. (410mm)	16.25 in. (413mm)
Wheelbase	11.81 in. (300mm)	12 in. (305mm)
Weight	150.4 oz. (4,262g)	145 oz. (4,105g)
Caster	Adjustable	Adjustable
Shock bodies	Threaded aluminum	Plastic
Shock shafts	3.5mm	3mm
Transmission ratios (final drive, 1st/2nd)	23.85:1/16.54:1	24:1/16.4:1
Slipper clutch medium	Semi-metallic pads	Rulon pegs
Drive axles	Telescoping plastic, curvilinear spline	Telescoping plastic, "square" spline
Wheel diameter	3.8 in. (97mm)	3.2 in. (81mm)
Tire diameter	5.75 in. (146mm)	5.75 in. (146mm)
Ball-bearing type	Rubber-sealed	Metal-shielded
Heat-sink head	Machined aluminum	Cast aluminum
Manifold	Tubular aluminum	Tubular aluminum
Pipe	Aluminum	Composite plastic
Steering servo	Dual 2055 high-torque	2055 high-torque
Throttle servo	2055 high-torque	2018 standard type
Transmission servo	Traxxas mini	2018 standard type
Receiver battery	5-cell NiMH	Not included

ROCK(er) on!

Both the Revo and T-Maxx suspensions can be adjusted for ride height, travel and "progressive" (the effective spring/damping rate as the suspension is compressed), but only the Revo lets you make these changes independently, thanks to its rocker-actuated shocks. With the T-Maxx, all three adjustments affect one another. Let's say you wanted to reduce the T-Maxx's suspension travel. To do this, you would have to install limiters in the shocks (not much fun with 8 shocks to dump and refill); but this would also reduce ride height because the shocks would be shorter. And since the shorter shocks would pull the suspension arms up higher at full downtravel, the angle of the shocks relative to the suspension arm will change, and that will alter the shocks' effective spring/damper rates.

Speaking of travel, the Revo gives you the choice of 90mm (stock setup) or 120mm of total travel, but you won't have to mess with internal limiters. Instead, reconfigured rocker arms are included to deliver the extra 30mm of swing.

A WEIGHTY ISSUE

The Revo has many features that trim weight as well as some that could conceivably add a few grams. We compared the trucks' total weights with the weights of their critical components to see where the heft is hiding.

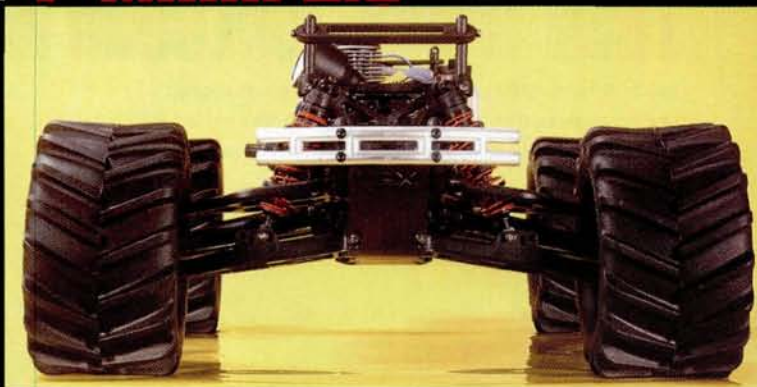
	REVO	T-MAXX
Transmission	6.25 oz. (179g)	8.8 oz. (250g)
Wheels & tires	8.95 oz. (254g)	11.7 oz. (333g)
Complete suspension assembly	26 oz. (737g)	23 oz. (644g)
Shifter servo	0.4 oz. (12g)	1.4 oz. (40g)
Total weight	150.4 oz. (4,262g)	145 oz. (4,105g)



REVO



T-MAXX 2.5



The Revo's out-of-the-box setup is much lower to the ground than that of the T-Maxx, and there's much less stuff above the bumper. It's easy to see how the Revo's center of gravity is much lower than the Maxx's.



The Revo's larger wheels and lower chassis stand out dramatically in this angle. The T-Maxx's fuel tank and engine (it's heaviest components when fueled) are very high on the Maxx and very low on the Revo.



The body-on shots reveal just how slammed the Revo really is. For racing, the Revo has advantages the T-Maxx just can't match.

TEST TRACK: WOLCOTT HOBBIES SPEEDWAY

Lester rolled out the red carpet for our Traxxas showdown with a fast and flowing layout that let us fly both trucks around the pipes with ease. If you're anywhere near Wolcott, CT, check it out for your-

self. Or, if you're closer to a keyboard, feed wolcotthobbies.com into the address bar. But don't be surprised if the track looks different when you get there; Lester's always trying out new layouts!



Track Testing



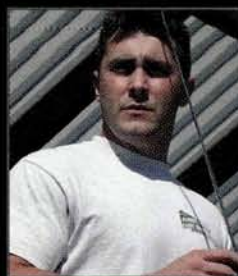
**JIM
SOUCY**



**LESTER
BASTENBECK**



**KEVIN
HEMANSKI**



**JAMIE
GRAYECK**

After we had shod each of the trucks with ProTraxx tires borrowed from the Stadium Maxx and installed AMB personal transponders, we cut loose on Wolcott Hobbies' hard-packed track with the help of local fast guys Jim Soucy, Jamie Grayeck and track owner Lester Bastenbeck. As expected, all the drivers were faster with the Revo, thanks to its lower stance and progressive suspension, but the T-Maxx was closer than we expected. Getting those close lap times out of the Maxx, however, wasn't easy. Its slow single-servo steering required the drivers to anticipate corners well in advance, and the Maxx's higher center of gravity made it more likely to flip. The Maxx was also more prone to oversteering and the occasional diff-unload, while the Revo's silicone-filled diffs helped it put power down more effectively. The Revo was easier to drive fast, and all the drivers posted more consistent lap times. If the trucks were given a tighter, race-specific setup, the Revo would likely open an even larger gap on the more top-heavy T-Maxx.

	REVO		T-MAXX	
	Best Lap*	Avg. Lap	Best Lap	Avg. Lap
Jim Soucy	29.8	31.2	30.2	33.5
Lester Bastenbeck	31.4	33.0	32.0	33.1
Kevin Hetmanski	29.9	31.1	34.1	35.2
Jamie Grayeck	31.1	37.3	33.9	37.3

*Time in seconds

»» JUMPING

Both the Revo and T-Maxx have seemingly bottomless suspensions that make big-air jumping a total blast. The T-Maxx is a little more sensitive to throttle in the air because of its meatier tires (and their greater inertia), but both trucks fly predictably. On touchdown, the Revo is less likely to roll over if you don't nail the landing, but for jumping fun, the Revo and T-Maxx are pretty much tied. They both peg the needle for laugh-out-loud, "Did you see that?" jumping action.



»» CLIMBING & CRAWLING

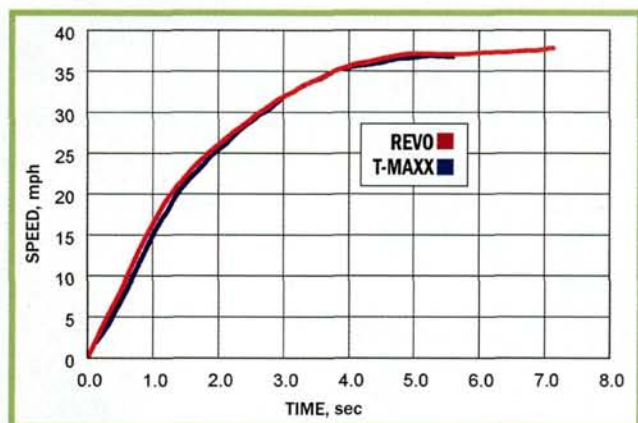
The T-Maxx was king of the hill. The transmission's internal clutch engaged at higher rpm and launched the T-Maxx up the dirt pile like a rocket. Its tractor treads helped, too; they excavated a lot of soil to send the truck to the top. The Revo ran out of traction sooner, and it simply couldn't climb as high.

The trucks were more closely matched when they crawled over obstacles without the benefit of momentum, but the Revo worked better thanks to its lack of clutch shudder. Although it occasionally high-centered on some things that the T-Maxx cleared, the Revo's more precise throttle control made it the rock-crawling champ.



ACCELERATION & TOP SPEED

The radar chart shows the time-to-speed details, and the curves are literally on top of each other. Unless you're blasting across a parking lot, the trucks are essentially equal. Despite the radar results, the T-Maxx felt as if it launched harder, but that was only because of its later clutch engagement. There was no real advantage; it just looked more impressive. We should also note that weather-wise, our test conditions weren't ideal for nitro, and both trucks would have likely topped 40mph under better conditions (and have in past tests).



DISTANCE TRAVELED IN	1 SEC.	2 SEC.	3 SEC.	4 SEC.	5 SEC.	0-132 FT. TIME	SPEED AT 132 FT.	TOP SPEED	TIME TO TOP SPEED
T-MAXX	10.74	41.68	84.0	133.61	186.58	3.97 sec.	35.39mph	36.85mph	5.25 sec.
REVO	12.53	44.94	87.78	137.60	191.14	3.89 sec.	35.34mph	37.13mph	5.25 sec.



FUN FACTOR

When it's time to just bomb around with the Revo and T-Maxx, the two trucks are dead even. Both are equally easy to start and reliable to run (since they have the same electric-start engines), and both have all the suspension travel and durability they need to blast over or through anything. We have to give extra credit to the Revo for never missing a shift into reverse and its total absence of clutch shudder. Although we never felt as if we were having less fun when the T-Maxx occasionally hung up in neutral or stutter-stepped as we tried to creep out of a tight spot, the Revo simply doesn't ask you to forgive these flaws.

THE WINNER

So is the Revo really a better all-around monster machine than the T-Maxx? If all you want to do is bash, you'll be very happy with either truck, so you might as well save a hundred bucks and get a T-Maxx. But if performance and convenience matter to you, the Revo is simply the better truck. The Revo's superior tunability, easier maintenance and greater track potential make it the high-water mark for small-block monster truck performance. ■

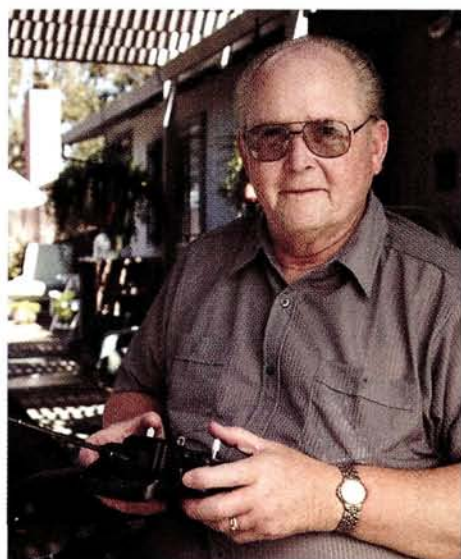
SOURCES

TRAXXAS CORP. (972) 265-8000;
traxxas.com.



RC CAR ACTION READER'S RIDE OF

William Nicholson's Custom Tamiya King Hauler and Low-Boy Trailer



William Nicholson of Sacramento, CA, behind the controls of a custom creation that took him 14 months to complete.

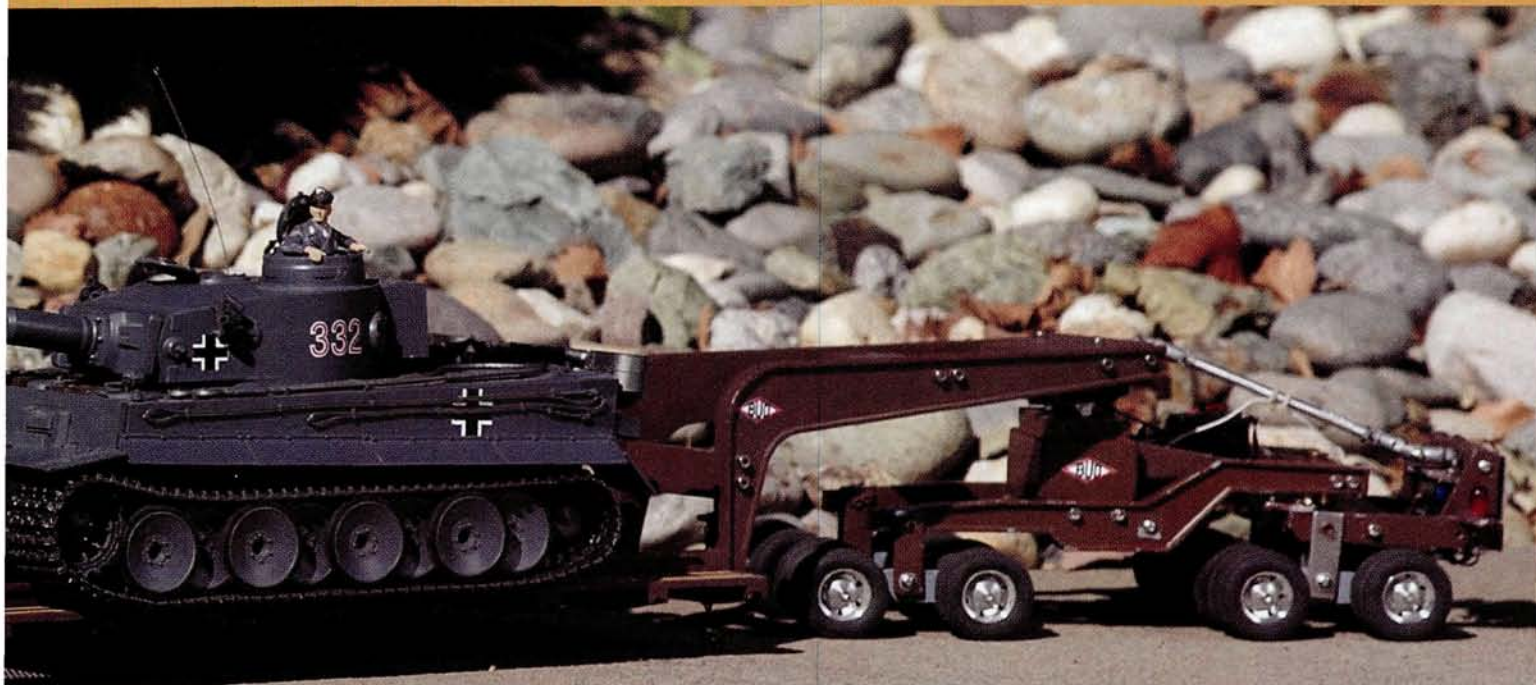
When it's time to pick our Reader's Ride of the Year, we look for original, well-executed custom machines that combine creativity and craftsmanship. If all you did was build a kit straight from the box, that won't cut it. Ironically, that's why we almost overlooked William's incredible creation! It's so perfect that anyone would think it was simply a well-built kit truck and trailer, until you realize that Tamiya doesn't build a short-cab King Hauler, and that no one offers a 1/14-scale low-boy trailer to go with it! William is a true modeler—the kind of guy who can turn out a handmade machine that looks factory-perfect. And his truck and trailer combo is our Reader's Ride of the Year!

THE TRUCK

William modified the King Hauler's cab by simply and carefully cutting off the sleeper portion. After blending all the edges for a seamless factory fit, he then added RAM turn signals and a brake and tail-light system. He also extended the frame by more than 3 inches and lengthened the smokestacks for a more realistic look.

THE TRAILER

"I drew up my own plans by photographing the actual low boy," says William. The full-size rig is rated at an incredible 100 tons and has rear steering. This model, of course, can't handle that much weight, but it does have fully functional rear steering. After making the rails, William fashioned realistic wood decking, and RAM lights were called into service again for the rear hazard lights. To secure his payload, he attached hooks to the trailer and used a chain with binders and turnbuckles.



by the RC Car Action team »»» photos by Gerry McIntyre

the year



Above: not only did William do a fantastic job building his modified King Hauler and homemade trailer, but he also built and superbly detailed his Tamiya German Tiger Tank. William's work is flawless.

Left: William not only wanted to make his model look realistic, but he also wanted it to function just like the real thing. Check out the elaborate rear steering setup. The trailer uses 48 tires!



WHAT HE WINS

William's model is fantastic, and for his efforts, he gets a cool \$500. Send in your photos and maybe you'll be 2005's Reader's Ride of the Year!

WORLD EXCLUSIVE!

LRP Sphere & Reedy NEO-One

**BRUSHLESS
MOTOR
SYSTEM**

by the RC CAR ACTION TEAM



Make no mistake: brushless motors are better than brushed motors from a pure "Which technology is better?" standpoint. But from a "Which is better for RC?" position, reviews have been mixed. Sure, brushless motors are more powerful and more efficient than brushed motors and require hardly any maintenance, but they require dedicated speed controls, and they're expensive. And when it's time to race, you can forget about running in the stock- or 19-turn class—or even the mod class, depending where you race.

This is where LRP's new Sphere speed control comes in. It's the cornerstone of LRP's new brushless motor system, and it's ready to plug into the new Reedy NEO-One brushless motor. But here's where things really get interesting: the Sphere also works with conventional brushed motors. And by "works," we don't just mean it does an OK job of making a brushed motor work in a pinch; it's a full-on high-performance speed control that can handle mod motors down to 7 turns! Now you can go brushless without giving up your brushed motors or compromising their performance. Sounds great. Does it really work?

SPHERE FEATURES

SMALL CASE WITH EXTERNAL SOLDER TABS

At 33.3x37.7mm, the Sphere is larger than LRP's Quantum speedos but smaller than the IPC series, so fitting it into any modern RC car shouldn't be an issue. Quantum-style solder tabs let you customize your installation, and no external capacitors are required.

FORWARD/BRAKE & FORWARD/BRAKE/REVERSE MODES

The Sphere gives you the option of a forward-only racing setup for race day and reverse capability for practice or play in both Brushed (B) and Brushless (BL) modes.

ADJUSTABLE PUNCH CONTROL

The Sphere has two levels of "punch" in brushed-motor mode: Low Grip and Modified. As the names imply, the Low Grip setting has a softer feel on the bottom end to prevent wheelspin, and Modified is wide open. When operating in BL

mode, you can also choose the Sportsman option, which limits motor rpm to 24,000.

ADJUSTABLE INITIAL BRAKE

Initial Brake is commonly known as "minimum brake," and it refers to the least possible braking force the speedo will apply. For example, if the minimum brake setting is 50 percent of total braking power, the speedo will apply 50 percent of total braking power as soon as the trigger is moved out of neutral and into brake throw. The Sphere can be set for Linear, Smooth, Medium, or Aggressive initial brake, but only in BL mode. Initial Brake is not adjustable when used with a brushed motor.

ADJUSTABLE AUTOMATIC BRAKE

This function is also "BL only." Auto brake is the same as drag brake; it's the amount of brake the speedo automatically applies when the trigger is returned to neutral. This is an especially important feature for the Sphere because BL motors lack a brushed motor's cogging effect that acts as a brake when you're coasting. Because of this, cars with BL motors barely decelerate when you let off the throttle, and that can take some getting used to. The Sphere allows you to select Smooth, Medium, or Aggressive auto-braking, or you can opt for no auto-braking.

OVERLOAD PROTECTION

Digital protection circuitry prevents the damage that can be caused by overload, overheating, or a short circuit. But unlike LRP's Quantum speedos, the Sphere isn't waterproof, so don't try the "sink the speedo in a glass of water" trick!

LIFETIME WARRANTY

Can't beat that. If your Sphere goes bad because of a material or manufacturing problem, LRP's got your back.





The NEO-One fits anywhere a 540 motor can go, and the compact Sphere controller is actually smaller than LRP's IPC-series speed controls.

REEDY NEO-ONE FEATURES

CONVENTIONAL CAN DIMENSIONS

Wherever a standard 540 motor fits, the NEO-One will fit, too. Likewise, its output shaft is of "standard size," so all your pinions will fit.

"SENSORED" DESIGN

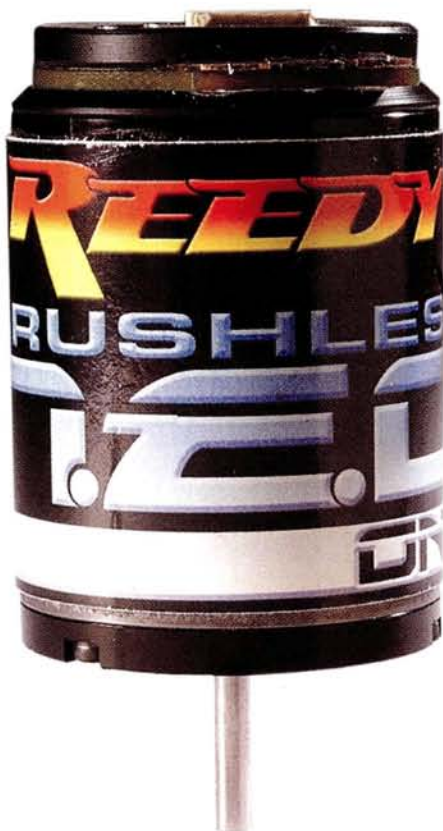
Unlike the sensor-less BL motors typically used in airplane applications, a "sensored" motor can "tell" the speed control the position of the rotor (what we call an "armature" in a brushed motor) relative to the stator (or can). This is crucial for delivering precise throttle and braking control.

NOVAK-COMPATIBLE

LRP and Reedy worked with Novak to make certain that the NEO-One would be compatible with the Super Sport controller. Novak's sensor harness plugs into the NEO-One without needing modification or adapters.

9-TURN POWER

According to Reedy, the NEO-One's 6500kv rating delivers power that's equivalent to a 9-turn brushed motor's. That's certainly enough output for most of us. The kv rating indicates how fast a motor will turn at a given voltage; a kv rating of 6500 means that the NEO-One will turn 6,500rpm at 1 volt. So, multiply that by 7.2 volts for a 6-cell pack, and you get a max no-load output of 46,800rpm.



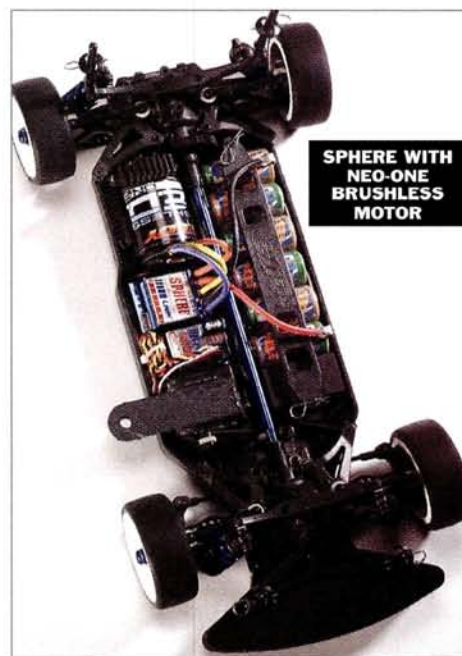
MANUFACTURERS' SPECS

LRP SPHERE

Input voltage	4.8-8.4 volts
Brushed-motor limit	7 turns
Brushless-motor limit	5.5 turns
Dimensions	33.3x37.7mm
Price	\$200
<i>Varies with dealer</i>	

REEDY NEO-ONE

Kv	6,500rpm/volt
Kt	3.53 nmm/amp
Commutation	Sensor-based
Magnets	Neodymium
Price	\$100
<i>Varies with dealer</i>	



SPHERE WITH
NEO-ONE
BRUSHLESS
MOTOR



SPHERE WITH
REEDY Ti
BRUSHED
MOTOR

Whether you go brushed or brushless, the Sphere doesn't clutter your car. Note: the yellow and blue wires are attached to the motor's negative lug when you use a brushed motor.

LRP: the Beginning

LRP is one of the most successful companies in RC, and it's also one of the "youngest." In 1988, LRP was a new name in motors and batteries, and founder Jürgen Lautenbach was one of Europe's top drivers while still attending university. We remember when LRP speedos first appeared on the scene; in fact, it was the first time we saw electronic speed controls referred to as "speedos"! We asked Jürgen about those heady early days. Here's what he had to say:

The LRP speed-control project started back in 1989. At that time, I was a professional RC racer travelling around the world and racing every weekend against the very best drivers. I used speed controls from the leading manufacturers but wasn't happy with their performance or reliability. Because I believed the speed control was the most important single component responsible for an electric racing car's overall performance, I discussed speed-control performance with many manufacturers and tried to give them my possible input, but nobody was prepared to listen. So I decided to build my own speedo.



Jürgen today, in his factory colors.

I started to design the very first LRP speed control with a friend in the laundry room of my parents' house. We developed the first speedo with only very simple tools and with components we bought from the electronic store down the street. After several weeks of designing and a lot of nights without sleep, the very first LRP speed control was ready for racing. It looked very handmade with wires everywhere on the conductor board, but the first test was very



Here's the first LRP speed control prototype. It looks like a science fair project!



The blue monster evolved into this: the LE 25 AMS, winner of three EFRA championships in 1990.

promising. I took this speedo to the 1989 Reedy Race in Lyon, France, to give it a full run under racing conditions.

This race was a big success for me. The track was very slippery, and the very good car control and "feeling" of the LRP prototype gave me an advantage. I battled for victory and finished second in 4WD behind world champion Jay Halsey. The whole world looked into my car and saw the prototype LRP

speedo in its blue heat-shrink. Following the race, the phone in my small office rang nonstop, and people from all over the world wanted to buy my speed control.

Based on this overwhelming response, I decided to manufacture and sell LRP speed controls. The following 12 months were very busy with intensive testing, and with the input of many LRP team drivers at races around the world, we changed and improved the design. All this time and effort to design the best possible speed control paid off in 1990. With the

production version of the LRP LE 25 AMS speedo, I set a still unbeaten RC record by winning three out of four EFRA European Championships in one year. The controller gave me a distinct advantage at the 1/12-scale Euros in England, the Pro 10 Euros in Austria and the 2WD Off-Road Euros in Belgium. Three classes; three European Championships; one speed control!

testing

TESTING THE SPHERE & NEO-ONE

Because we were testing the only Sphere and NEO-One in North America, our review time was short, and all our tests were run in a nearby parking lot and not a racetrack. We installed the system in an Associated TC4 (yeah, we were psyched, too!) and hit the pavement with the Sphere set up for maximum power and the punch control set to Modified. After the first blast across the lot, we thought the diffs were slipping. Wrong! The TC4 was simply lighting all four tires for the first 20 feet of the run. Once the tires hooked up, the car was ballistic. With stock gearing, it was good for an easy 40mph-plus. A lighter touch on the trigger yielded more controllable acceleration and showed off the Sphere/NEO combo's incredible smoothness. It felt as if a magnet was pulling the car across the pavement, as it glided like an air-hockey puck—and continued to glide after we let off the gas, since the Initial Brake was set at zero. This made the Sphere's braking control that much more apparent as we traded the transmitter to try out the binders. We all were impressed by the precise feel and control, especially since we were running with slick tires on a dusty parking lot. Brushed-motor braking doesn't really compare; what we thought felt great in a brushed car is nothing compared to the Sphere.

So the brakes work great, but we still wanted some automatic braking, so we gave the Sphere's setup button a few clicks to dial in Smooth auto brake and initial brake settings. These felt very subtle, and the TC4 still coasted for a loooong time (to be fair, we wicked it up to full bore, so it had a lot of inertia). As we clicked through the

Medium and Aggressive settings, the drag-brake effect became more pronounced. In addition to mixing and matching the Initial and Auto brake settings, you can also tweak the drag-brake force the old-fashioned way: at the transmitter.

After giving the brakes a good workout, we tried the punch-control system. With the Modified setting, the TC4 didn't have a problem smoking the tires like a drifter, so we tried out the Low Grip setup. The car still broke all four tires loose, but it hooked up much more quickly. Overall acceleration didn't suffer; all we felt was more tractable throttle delivery when we clamped the trigger. If you ever find yourself looping out of corner exits, the adjustable Punch Control could really help you keep your car pointed down-track.

With that, we were ready to strap in a brushed motor to test the Sphere's dual-mode capability—but not before we gave the motor and speedo the ol' how-hot thumb test. Both were merely warm after a full 15 minutes or so of running. We like that.

For our brushed-motor tests, a Reedy Ti 10-turn replaced the NEO-One. Out on the parking lot, the TC4 was just as quick, and the throttle felt completely "normal." There's nothing unusual about it; you'd swear you were running a Quantum speed control. That was a real surprise. We each took turns romping up and down the parking lot and making stops from various speeds and with various amounts of brake power, and the Sphere just did its thing with pro-caliber precision. And it stayed cool, too!

THE VERDICT

Well, it looks as if the future has arrived, and it's brushless. And brushed! The Sphere's dual capability is its showstopping feature, but what really counts is its performance, and it performs extremely well with brushed and BL motors. Apart from having a higher price than pure brushed technology, there just isn't a downside to this system. The Reedy motor rips, and the Sphere controller makes no compromises with either type of motor. And about that cost issue: if you compare the cost of the Sphere to the coin it would take to bring home a dedicated BL controller and a pro-quality brushed-motor speedo, the Sphere suddenly seems like a steal!

SOURCES

LRP distributed by Team Associated.
REEDY a division of Team Associated.
TEAM ASSOCIATED (714) 850-9342;
teamassociated.com; rc10.com.

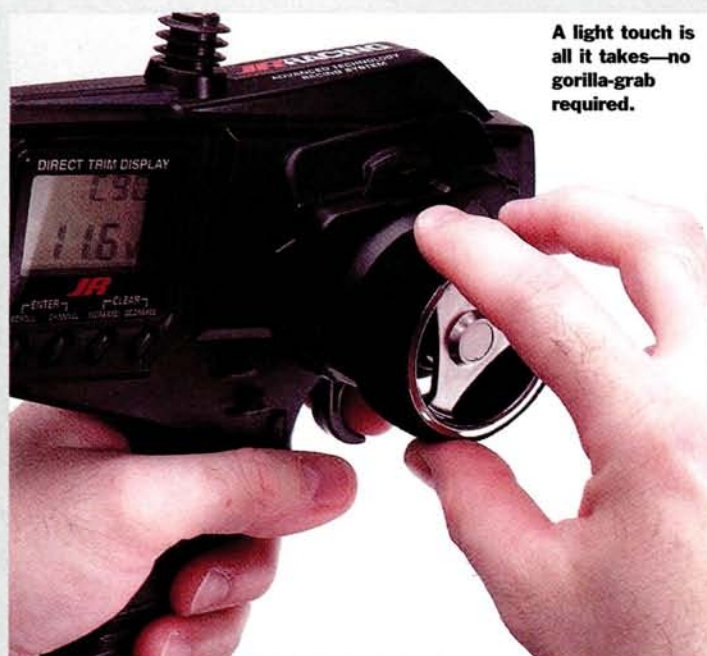


Joel's bench

by Joel Johnson

pro transmitter

I went back to my local track for the start of the indoor season. Although it has been a while since I've driven, 29 years of racing experience has enabled me to wheel my car around a track without too much trouble. I spent time in the pits and watched people practice. It dawned on me that some racers spend a lot of time "tuning" their cars yet still go out and commit the same driving technique errors over and over again. People constantly ask me questions about setup, tire choice and gearing, but I never hear "How do I improve my driving?" To open up the topic and (hopefully) get some racers out there to concentrate more on driving technique and less on which shock oil and pistons to use, here are seven tips on how to become a smooth and more precise driver.



A light touch is all it takes—no gorilla-grab required.

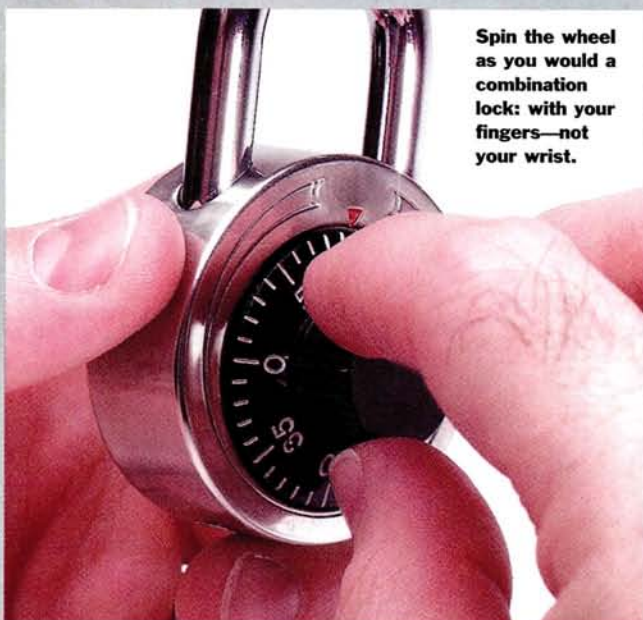
GRIPPING THE WHEEL.

Let's start with how to grip the steering wheel. Your transmitter is a delicate instrument, so treat it as such. Do not use all your fingers when you grip the wheel; use only your thumb, index finger and middle finger. Position your index finger right of center at the top of the wheel and let your other two fingers and thumb fall wherever they rest naturally on the wheel. Positioning your fingers this way should keep your wrist in a very relaxed position. You could also place your ring finger on the wheel, but you won't gain any more control by doing so.

Grip the wheel just hard enough to feel the wheel. No death grips, please. A light feel with these three fingers will give you a better feel for steering the car so you can steer more accurately. Ultimately, your hand in its most relaxed position serves as the center of the right/left motion of the steering wheel.

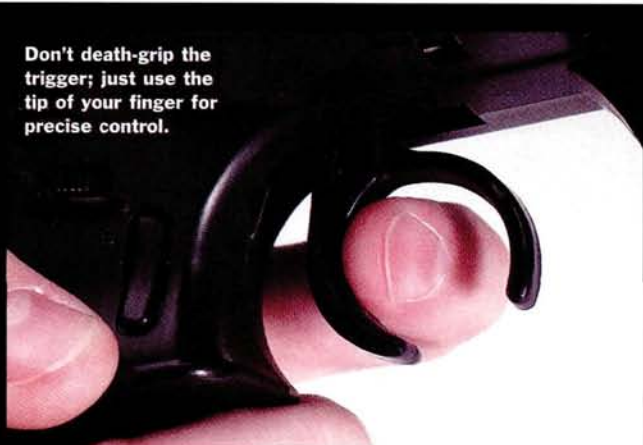
TURNING TECHNIQUE.

Next is steering input. The best drivers in the world get that way by using only the necessary amount of steering input. The key word here is "precision." Rotate the steering wheel with your three fingers—not your wrist. Again, be delicate; radios these days are very accurate and receptive to minute movements of the wheel. You can't be precise if your fingers are stiff and you're using your wrist to turn the wheel. Imagine you're opening a combination lock; this is the type of movement you want from your fingers.



Spin the wheel as you would a combination lock: with your fingers—not your wrist.

Don't death-grip the trigger; just use the tip of your finger for precise control.



PROPER TRIGGERING.

Use only the tip of your index finger to pull the trigger; this will give you a much greater feel for the throttle position, and you'll be less likely to give too much input to the throttle. Do not place your finger on the trigger deep up to your knuckle. With nitro vehicles, using the tip of the index finger also allows more accurate braking.

PHOTOS BY PETE HALL

technique

NEVER LET GO OF THE WHEEL.

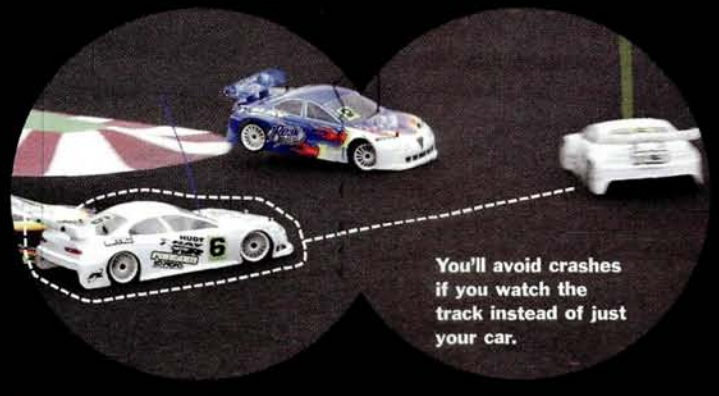
One of the biggest mistakes I see with new drivers is a tendency to let go of the wheel to center the steering as their vehicles exit turns. Rule number one: NEVER let go of the steering wheel. To become a smoother driver, the car should always be steered out of one corner into the next. The minute you let go of the wheel, you can no longer gracefully grip it with your fingers to give the proper amount of steering input. You'll be more likely to grab the wheel and crank it over to full lock to make the next turn. Let the return spring of the steering wheel guide your hand back to center, but don't let it control your hand. Your hand should always control the wheel.

You can't be in control if you're letting go of the wheel mid-race.



LOOK WHERE YOU'RE GOING.

This sounds like a no-brainer, but try to focus on what's slightly ahead of your car instead of right on the car. You'll get better at this once driving becomes more second nature. As a driver becomes more comfortable with a track layout, looking slightly ahead allows him to make much cleaner passes and get much closer to the apex of the turn without hitting the barrier. To start, try focusing on the nose of your car, but don't let the spinning front wheels mesmerize you. This is how the top drivers work traffic as if it weren't there.



It's best to use much less steering input and less throttle, so the car carries a much smoother arc, consumes less energy, wears its front tires more slowly and improves its lap times.

AVOID THE DREADED CLICK!

While driving, you should never hear the sound of a clicking wheel or trigger (except when the buzzer sounds for the start). Smooth inputs to throttle and steering win races and leave you with extra battery life at the end of the race. When your vehicle enters a turn, gradually release the trigger, allow it to return to neutral and gradually turn the wheel. This happens in a split second, but your throttle finger should always be in contact with the trigger. As the car exits the turn, do just the opposite: gradually pull the trigger and gradually unwind the wheel back to center or the opposite direction. Sudden steering or throttle inputs make a car look as if it's handling poorly, when it's actually just being driven in a choppy manner.

FULL THROTTLE ISN'T ALWAYS FAST.

Many drivers use too much throttle in the infield or "over-drive" their cars. Few tracks are large enough for you to use full throttle in the infield, but 90 percent of the drivers I've seen at the track are doing just that. The drivers often use 100-percent steering lock to slow the car down. It's best to use much less steering input and less throttle, so the car carries a much smoother arc, consumes less energy, wears its front tires more slowly and improves its lap times. Here is a good test for this: put something behind the trigger to stop it from going back further than $\frac{3}{4}$ throttle. A couple of pieces of servo tape work well for this. Put in a decent practice run, and time your laps. I bet you are as fast, if not faster, with only $\frac{3}{4}$ throttle. This will be more apparent on small tracks than on bigger tracks.

Can't stop grabbing full-throttle? Force yourself to slow down by placing a pad behind the trigger.



TRANSMITTER TUNE-UP

The better your radio fits you, the faster you'll be on the track. Here are a few tips and tricks to make your radio work for you.

>>> PAD THE BRAKE TRIGGER.

Braking accuracy is very important in nitro racing —especially off-road. Make sure that your index finger is as close to the brake hook on the trigger as possible. Many racers heat this plastic piece and bend it closer to the trigger, but it's easier to slide a piece of fuel tubing over it to bridge the gap between your finger and the brake hook.



If your radio's brake hook isn't adjustable, try slipping a piece of fuel tubing over it for a custom fit.

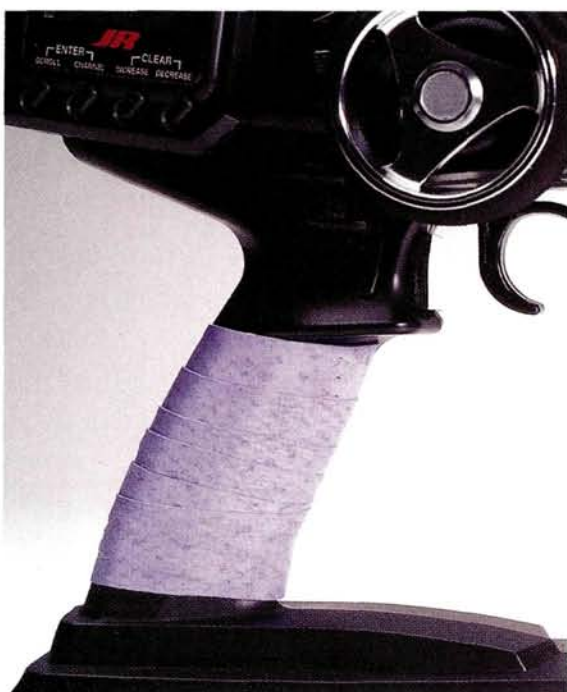


Carve out the finger rests a little at a time until they feel comfortable. It's easy to take foam off but hard to put it back on!



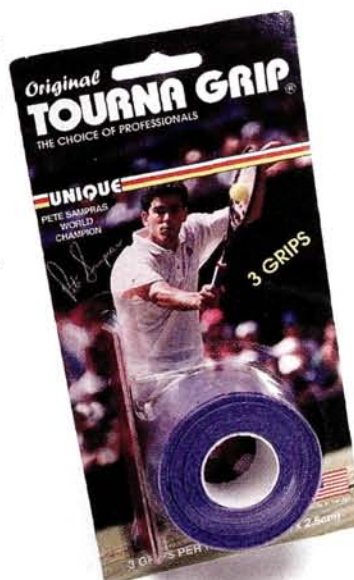
>>> NOTCH THE WHEEL FOAM.

If you are having trouble keeping your fingers indexed on the wheel, try this trick Brian Kinwald uses: place your fingers comfortably on the wheel and mark their positions. Next, with a Dremel tool with a sanding drum, grind small indents into those marks. You'll be able to feel where your fingers should be, and it will make it more difficult to let go of the wheel.



>>> CUSTOMIZE YOUR GRIP.

Sweaty hands bother you in the heat of battle? No problem: use tennis racquet grip tape on the handle of your transmitter so you don't have to grip it so tightly to hold it securely. The grip tape is much tackier than the transmitter's plastic handle, and it will prevent the sweat from making the handle slippery. If you really want to go all out, put foam rubber under the grip tape to build up the handle so it fits in your hand just right.



Check out the local sporting goods store for tennis racket tape. Pete Sampras likes this stuff, so it must be good!

SOURCES

DREMEL TOOLS (800) 437-3635; dremel.com.

RACER NEWS

BY THE RC CAR ACTION TEAM

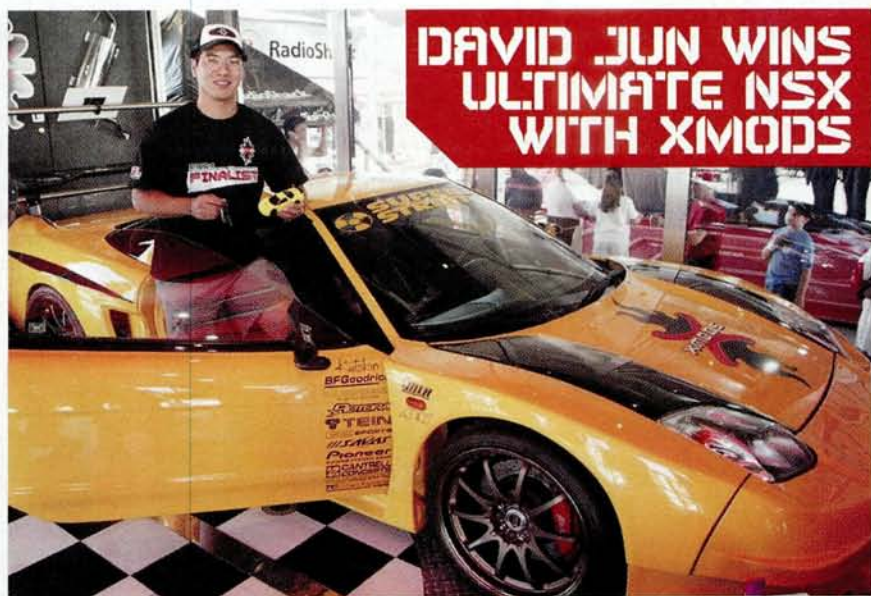


BAKER BLASTS BLACKTOP, EH?

The first annual Canadian Asphalt Invitational was held in the great white north of Edmonton in Alberta, Canada (best known for producing "The Great One" Wayne Gretzky). It's a hockey town, but they know how to throw it down on asphalt with RC at the Northern Alberta Scale Car Auto Racers (N.A.S.C.A.R.). Team Associated's Barry Baker made the trip and dominated the competition in the $\frac{1}{10}$ -scale Modified and $\frac{1}{10}$ -scale Nitro classes. Dave Palmer won the 19-turn class with an Associated TC3, and Sam Lui took home the winner's trophy in $\frac{1}{8}$ -scale Nitro. For more info, check out edmontonrc.com.

SPASHEIT WINS EUROPA CUP

Team Losi/Team Orion's David Spashett has dominated yet another event in Europe. If he isn't the faster on-roader over there, who is? Spashett's latest victory came at the Europa Cup in St. Etienne, France. He drove a Team Losi Triple-XS powered by his own signature "Spashett Edition" 9X2 modified motor for the win.



DAVID JUN WINS ULTIMATE NSX WITH XMODS

Tamiya's David Jun won a \$120,000 Acura NSX courtesy of RadioShack's XMODS racing series! Jun's new car isn't your average NSX: this baby has a fully punched engine and dozens of custom mods. Jun won the XMODS Championship in Atlanta, GA, and the Acura was the grand prize. Team Orion/Losi's Joe Pillars and Rick Hohwart took home second and fourth, respectively. Stay tuned for a closer look at Dave's new ride.



GERMAN 4WD NATIONALS: LUBKE ÜBER ALLES

Marcus Lubke dominated the competition at the 4WD Nats with his Team Orion-powered Team Losi Triple-X4. Marcus wasn't the only fast guy with a Losi; Triple-X4s grabbed five of the top six spots. Jorn Neumann was the spoiler; he finished second with his Durango. Glückwünsche, Mannschaft Losi!



ANDREW CARTWRIGHT MOVES TO ORION

Touring car ace Andrew Cartwright will continue to run Schumacher's M12 touring sedan, but it will now be powered with Team Orion V-Max Plus RDS GP3300 cells and Revolution V2 modified motors. Cartwright took second at last year's Reedy Touring Car Invitational in the Open class and can certainly run with all of the top dogs. Andrew won't have to worry about getting practice time: his parents own a track in Washington.

XRAY'S GOT SEOUL.

Seoul, Korea, hosted the '04 XRAY Touring Car Championships, where Jilles Groskamp was the man of the weekend with his XRAY T1 Factory Kit. Groskamp shocked the other competitors when he TQ'd in the modified class by more than 8 seconds with Peak Vantage power. He went on to win the first two of the three A-mains to take the overall win.



RACERS' RIDES

Kurt Wenger >> BMW M3

Team Associated/Reedy's Kurt "Coach" Wenger's BMW M3 is known as the "lady grabber," according to some of the A-Team guys. The M3's inline-6 engine produces



over 240hp and can get 'er done in the quartermile in less than 14 seconds, but don't expect Coach to be drag racing anybody soon. A 360-spinout on an on-ramp in Seattle, WA, "... put my hot-rodding days to an end 'cause it scared the crap out of me," says Kurt.

SITE SEEING



RCPROSERIES.com

The RC Pro Series is the hottest nitro series going. It has four divisions (North, South, East and West) that meet at the end of the season for the championship. The Series website features race schedules and rules, standings from each division and interviews with the pro drivers. Look for '05 races in your part of the country, so you won't miss the opportunity to race in 1/8-scale Buggy, 1/10-scale Nitro Truck, Production Monster Truck and Unlimited Monster Truck.

GOT A STORY FOR RACER NEWS?

Drop us a line at racernews@airage.com.

RACER NEWS

UNDER THE HOOD

Atsushi Hara's

HPI R40

RACE: ROAR FUEL SEDAN NATS WINNER

EQUIPMENT

Transmitter: KO Propo Helios

Receiver: KO Propo 302F

Steering servo: KO Propo PDS-2363

Throttle servo: KO Propo PDS-2364

Fuel: Maxy 30%

Engine: Maxy/Novarossi SX-12 SS

Pipe: RD Logics Turbo II

Clutch: Mugen Grey

Glow plug: Novarossi no. 7

Tires: Team Orion Nitro Shoes

Body: Protoform Mazda 6

Gearing: (1st) 21/60; (2nd) 28/52

SETUP

FRONT

REAR

Camber	2 deg. negative	3 deg. negative
Front upper-arm shims (F/R)	2/5mm	-
Rear upper-arm shims (F/R)	-	3/2.5mm
Lower suspension mount	Down	0
Rebound	2mm	3.6mm
Bump stop	0	0
Toe-in	0.5 deg. out	3 deg. in
Ride height	3.3mm	3.6mm
Shock fluid	60WT	50WT
Shock piston	1-hole	2-hole*
Shock springs	Black	Red
Shock bladders	Tamiya black	Tamiya black
Shock mount (tower)	Upper middle	Inside
Shock mount (suspension arm)	Upper hole	Upper hole
Upper-front-arm position	Stock	-
Rear camber link	-	Lower inside
Rear vertical-ball-stud shims	-	4mm
Front roll-bar setting	90 deg.	-
Tire shore rating	42	42
Tire diameter	58mm	58mm
Diff type	One-way	4-gear
Diff fluid	-	30,000

*Atsushi drilled out the valve holes with a 1.1mm drill bit

FACTORY & AFTERMARKET OPTIONS

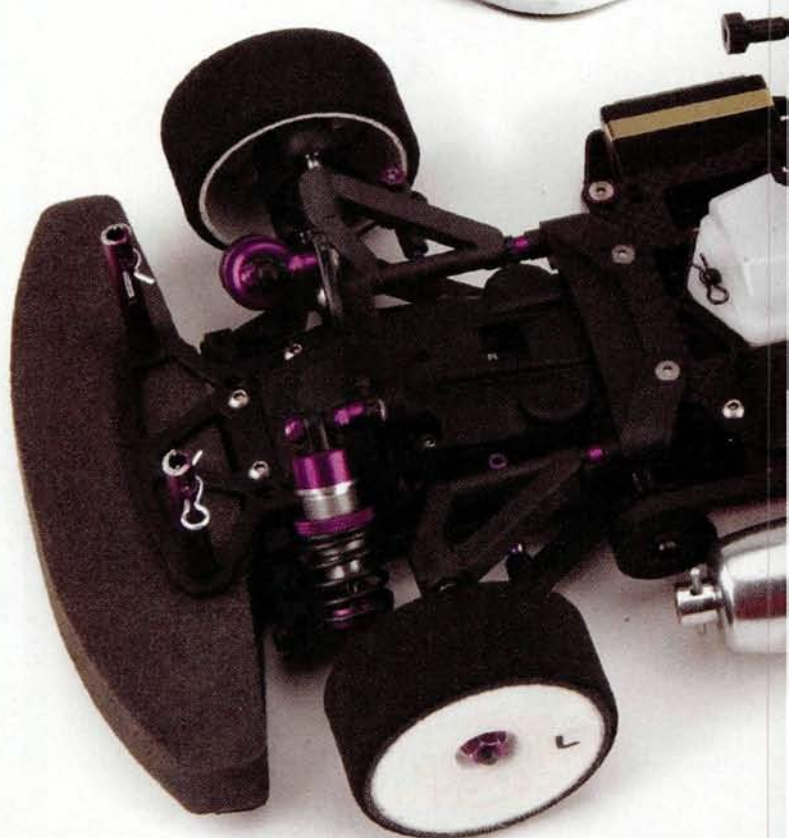
HPI

- Lightweight 2-speed shaft
- Lightweight middle shaft
- R40 Steering-upgrade set
- 4-gear diff set
- Aluminum hex-hub clamps
- Threaded aluminum shocks
- Woven-graphite front and rear shock towers

- Lightweight graphite mid brace
- Front one-way diff
- Aluminum middle mount
- Titanium screw set
- Lightweight 2-speed set (0.8-inch module)

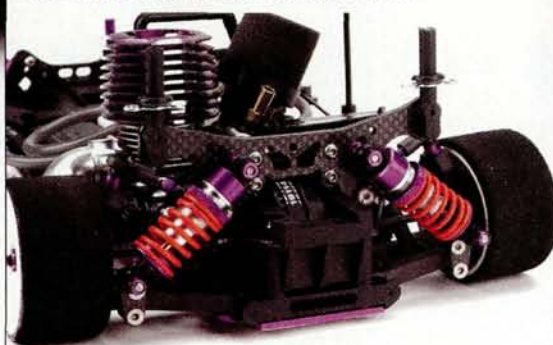
Hot Bodies

- Aluminum front body posts
- Aluminum steering rack (prototype)



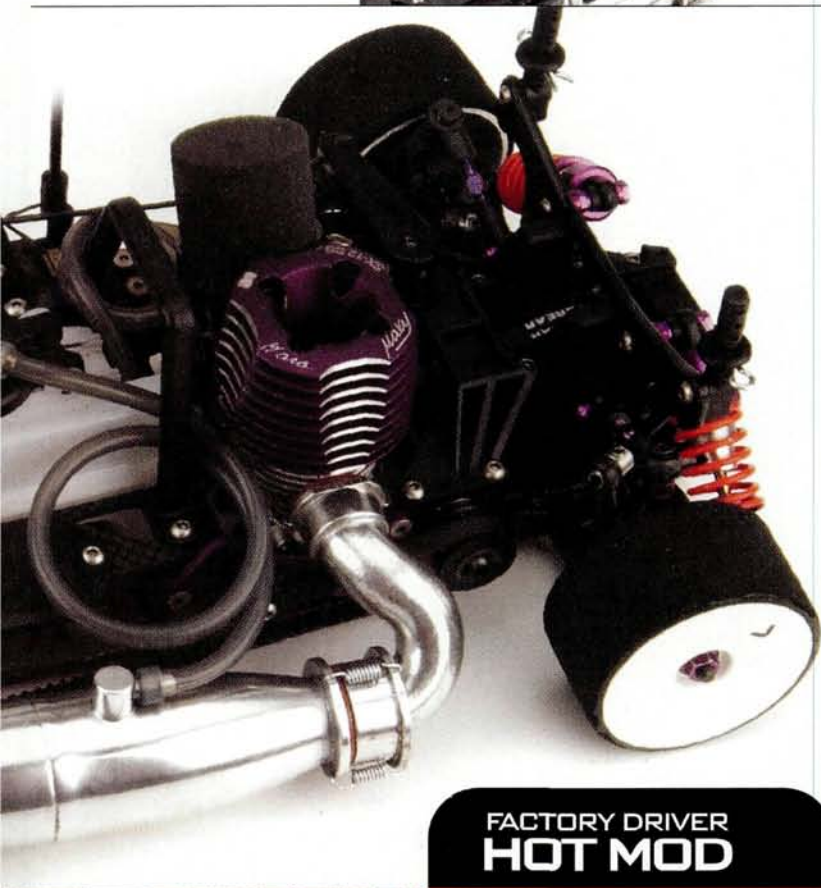
Atsushi mounted the receiver directly on the throttle servo on the right side of the chassis with servo tape. Mounting the receiver in this optional location simplifies wire routing considerably. As you can see, Atsushi chooses not to run a switch harness. Plug in the battery connector and his car is "on."

Most of the hop-ups, including the threaded-body shocks, graphite shock tower, 4-gear diff and titanium screws are all available from HPI. Hara adjusted his car's roll center by adding spacers under the outboard camber-link rod ends.



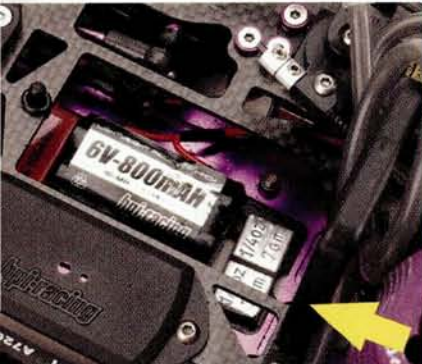
The optional 0.8-inch module gear set broadens Hara's gearing options. The Centax-type clutch is equipped with Mugen Grey clutch shoes.

The Maxy-modified Novarossi SX-12 SS engine gave Hara the power and reliability to complete the long 1-hour Main. He installed three head shims and used a no. 7 glow plug and 30-percent nitro fuel.



FACTORY DRIVER HOT MOD

With the fuel tank removed, you can see Hara's trick location for the AMB personal transponder, to the left of the battery. It's mounted directly on the lower chassis plate with servo tape. This positions the transponder low and centered on the chassis. As you can see, he had to add ballast to bring the car up to the legal weight.



SOURCES

HOT BODIES (909) 296-9340; hotbodiesonline.net.
HPI RACING (949) 753-1099; hpiracing.com.
KO PROPO USA INC. (310) 532-9355; kopropo.com.
MAXY (305) 597-0220; maxysfuel.com.
MUGEN USA (949) 707-5607; mugenracing.com.
NOVAROSSİ novarossi.com.
PROTOFORM INC. distributed by Pro-Line (909) 849-9781; pro-lineracing.com.
RD LOGICS (626) 810-7797; rdlogics.com.
TEAM ORION INC. (714) 694-2812; team-orion.com.

5 QUESTIONS



DRIVER: Atsushi Hara

AGE: 24

LAST BIG WIN: ROAR Fuel Sedan Nats

SPONSORS: HPI, Hot Bodies, Team Orion, KO Propo, RC World, AHRP, BSG, Maxy

WHEN I'M NOT RACING I LIKE TO: karaoke and play golf.

RC CAR ACTION: Congratulations on your second consecutive win at the ROAR Fuel Sedan Nats. You qualified third on the grid right behind Barry Baker. What was going through your mind in the moments before the tone went off and the race started?

ATSUSHI HARA: I knew that the final was an hour long, so I wanted to get a good, clean start and avoid a big crash at the beginning.

RCCA: Preparing a car for a 1-hour race is a challenge. What do you think are the most important aspects of setting up a car for a long main event?

AH: The most important aspect of setting up a car for a long final is deciding which tire diameter to start with. The track was extremely high bite, which made it too easy to traction roll if I started with big tires. So I used the smallest diameter tire possible for the best handling. My strategy was to make sure that my car worked best at the end of the race, so I could push hard all the way to the finish.

RCCA: Your tires must have been ground down to the rims toward the end of the race. Did you find that you had to drive more defensively toward the end to keep your car up front?

AH: My R40 handled really well all weekend, even with small tires at the end of the race, so I was able to concentrate on driving consistently fast lap times without making mistakes rather than having to think about defensive driving.

RCCA: Did you think the race was over when Swauger took the lead away from you on lap 156, or were you confident that you could regain the lead?

AH: No, I never give up in the middle of the any race! After Swauger passed me, I picked up my pace to get close behind him. I knew if I stayed close, I would have a chance to pass him before the finish.

RCCA: Swauger's race ended when his receiver battery died. Do you think you would have made a comeback if Swauger had managed to hang on until the end?

AH: Sure; after Swauger dropped out, it made the race a little easier for me. But I enjoy close and exciting racing. It might have made things a little tougher if he continued driving until the end of the race, but the spectators would have enjoyed an exciting finish. To win the race is my highest priority, but making the race exciting is also important, so it would have been fun if I could have raced Swauger to the finish. In the end it was a great race. I thank my teammate and pitman Thad Garner and my engine and fuel supplier, Maxy, who supported me in this race.



2004 ROAR

by Mike Myers & Lito Reyes

FUEL SEDAN

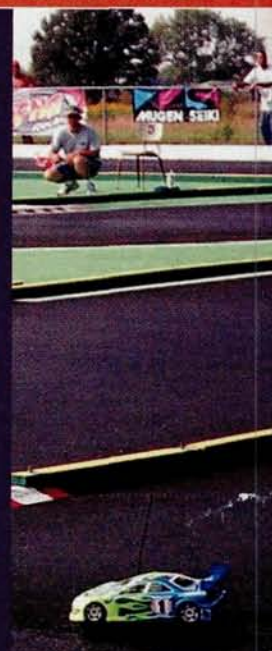
SPONSORED BY • HPI RACING • KO PROPO • MUGEN SEIKI • OFNA • SERPENT USA

Holy Toledo! Hara wins again!

With 153 racers, the 2004 ROAR Fuel Sedan National Championships in Toledo, OH, hosted by the Toledo $\frac{1}{8}$ Racers was a sellout. Most of the attendees had competed in the Touring Car National Championship earlier in the year, but many racers over the age of 40 signed up for the "Masters Class." All the major teams were present, and they brought their latest and greatest equipment—and their hottest drivers. Team Associated brought out several racers such as Barry Baker and Mike Blackstock. HPI sent its superstar Atsushi Hara with pitman Thad Garner. Mugen sent Mike Swauger, who dominated this class at the Winternats in Fort Myers, FL, a few months earlier. Josh Cyrul, Bobby Flack, Ron Atomic and Chris Tossolini drove Kyosho's latest shaft-drive sedan car: the FW-05R. Nearly every brand of touring car was represented at this event.



Top qualifier Mike Swauger congratulates Atsushi Hara after a tremendous battle in the A-main.

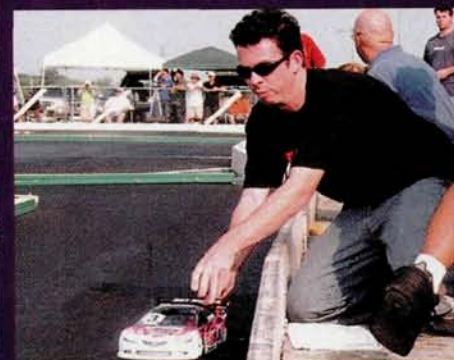
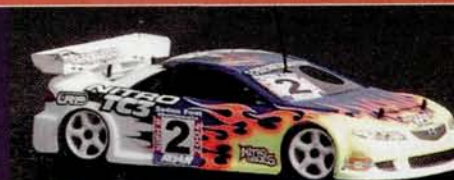




HPI driver Atsushi Hara put on an amazing display of driving talent during the 1-hour-long A-main. This is Hara's second consecutive ROAR Fuel Sedan Nats win.



NATIONALS



Pitman Thad Garner places Atsushi Hara's HPI R40 on the track for warm-up laps.



Top qualifier Mike Swauger lead the entire race until the receiver pack in his Mugen died with 8 minutes left in the race. Now that's a real bummer!

QUALIFYING

Associated's Barry Baker seemed to own the track on Friday. He was usually on a perfect line; he cleared traffic effortlessly and was definitely putting in the fastest times. At the end of the first three rounds, Barry was in the TQ spot.

Saturday was warmer than Friday, but the clouds seemed to come and go, so the traction varied depending on whether it was sunny or shady. On Saturday, the heats had been re-sorted, so most of the faster guys got to run together in the last two heats with the "A-guys" in the last heat. By the end of round 5, Mike Swauger had taken over the TQ position. Barry Baker qualified in second place, and Atsushi Hara secured third.



The A-main top three finalists from left to right: Mike Blackstock (second), Atsushi Hara (first) and Chris Tossolini (third).

A-MAIN ACTION

Sunday's weather was absolutely perfect—hotter than the previous days with a picture-perfect sky. By late afternoon, everyone near the track crowded around to watch the 1-hour A-main. There was a hush from the crowd as the flag dropped, and the race was on its way.

Barry Baker immediately grabbed the holeshot, but by lap 3, Josh Cyrul snuck by and took over the lead.

Baker hung right in there with Cyrul until he got stuck in a corner and dropped back to sixth. Atsushi Hara, who started in third place, moved up to second. Cyrul looked as if he was extending his lead until he bumped over a berm on lap 21, which allowed Mike Blackstock to take over the lead.

Cyrul's car flamed out on lap 29, and that cost him 20 seconds as his pit crew restarted his car. The lead changed during the second round of pit stops; Blackstock entered in first place followed by Hara and Swauger, but Hara's faster pit stop allowed him to exit pit row in the lead followed by a hard-charging Blackstock and Swauger. By lap 72, Swauger had chased down Blackstock and managed to get by his Nitro TC3 and set his sights on Hara. As Swauger tried to catch Hara, Blackstock was trying to get around Swauger. On lap 83, Blackstock logged an 18.937-second lap—the fastest lap recorded at the event.

Swauger seemed to be a bit faster than Hara, and he was closing in. But he bobbled, and that set him back a little farther. That is, until Hara made a mistake on the very next lap, and Swauger was right back up on his tail. Hara and Swauger both came into the pits together on lap 105, but Swauger's pit time was a bit

Atsushi Hara's R40 is pretty much box stock except for a few HPI and Hot Bodies hop-ups. The car looks good, considering it just finished a 1-hour Main.



THE FACILITY

The completely repaved track had been expanded to 110x230 feet, and the new asphalt was perfectly flat and provided excellent grip while minimizing tire wear. Most of the track features were rather "technical," but there was a long straightaway where cars could really get up to speed. The track lanes were quite wide, and the boards were tied together but not anchored to the ground.



faster than Hara's, giving him the lead as he exited the pits. Unfortunately, Swauger's body had gotten caught on the rear tire, and that allowed Hara to jump back in front while Swauger's pit crew fixed the body. Swauger now had to make up about 4 seconds to catch up to Hara.

For a moment, Blackstock got by Swauger on lap 113, but after the next round of pit stops, Swauger was back in second, and Blackstock was riding it out in third. By lap 125, Swauger was right up on Hara's tail doing his best to get by. Hara, was doing everything in his power to prevent Swauger from getting around him. Swauger finally snuck by Hara on lap 126 to a roar from the crowd and started to pull away. The running order was now Swauger, Hara and Blackstock. Just when it looked as if Swauger had control of the race, his receiver battery ran out of juice on lap 156 (with 8 minutes left in the race).

The running order was now Hara, Blackstock, Swauger (dead), Chris Tossolini and Jeffrey Lin. With 5 minutes to go, many racers were running bald tires. Hara's lap times were getting slower, but Blackstock's times were becoming faster. Blackstock had a 5-second gap to make up, and he managed to cut that margin in half as the end of the race neared. On lap 171, Tossolini surpassed Swauger's total number of laps and took over third place. Meanwhile, Blackstock ran out of fuel on the very last lap with his car stopping on the track just inches from the start/finish line. He was finally pushed across the line by Chris Tossolini, and that put him in second place. So, the race came to an end with Atsushi Hara winning his second consecutive ROAR National Championship in the Fuel Sedan Class!

The race was all over—or was it? Tech inspection revealed that Mike Blackstock's car weighed slightly less than the legal limit. After a long delay, the scale, car, body and even all of the rubber dust that had fallen out of the car onto the tech table was taken to a trailer to get a better measurement. The scale was set up on a level plate and re-calibrated. Under these circumstances, Mike's car was deemed just-legal, and Mike retained his well-earned second place.



A well-deserved "thank you" goes to the much-appreciated tech crew and race directors. These guys did an awesome job managing the event.

A WELL-DESERVED THANK YOU

Thanks need to be given to those who made this race possible: the Toledo $\frac{1}{8}$ Racers who hosted the event, the tech crew headed up by Brent Gottfried with the help of Rick Davis, Lou Przybyla, Raye Field, Chuck McKinley, Joe Tuttle, Joe Roberto and Greg Burch, as well as Bryan Young (who handled timing and scoring) and judges David Lee and Mike Queller.

Thanks go to the sponsors: HPI Racing, KO Propo, Mugen Seiki, OFNA and Serpent USA as well as all the companies that donated equipment for the raffle: Dynamite, Fusion Motorsports (importer of Novarossi engines), Futaba, JR Racing, Internet RC (importer of REX engines), Mugen (it donated the complete engine out of Mike Swauger's car), RD Logistics, Twister Tires and White Lightning Fuel.



Mike Swauger, Atsushi Hara and Chris Tossolini mix it up on the drivers' stand during the 60-minute A-main final.

ILLEGAL FUEL ADDITIVES?

It wouldn't be a good event without some controversies, right? Early in the qualifying rounds, rumor had it that some racers were using oxygenators mixed in with their fuel. This is usually in the form of a powdered fuel additive, which acts as a catalyst with the methanol in the glow fuel to make it burn faster. There is no rule against using this type of additive in the ROAR handbook, and it is very expensive to tech inspect for it. The ROAR executive committee will have to rule on the use of this stuff.

WINNERS

^{1/10} Fuel Sedan

FIN.	QUAL.	NAME	CHASSIS	ENGINE	FUEL	PIPE	TIRES	BODY	RADIO
1	3	Atsushi Hara	HPI R40	Maxy	Team Orion/Maxy 30	RD Logics	Team Orion	Protoform	KO Propo
2	5	Mike Blackstock	Associated NTC3	O'Donnell REX	O'Donnell 30	Associated	Jaco	Protoform	KO Propo
3	8	Chris Tossolini	Kyosho FW05R	Sirio	Fantom 30	RD Logics	Twister	Protoform	Airtronics
4	B	Jeffrey Lin	OFNA CD3	RB	Byron 40	OFNA	Jaco	Protoform	Futaba
5	1	Mike Swauger	Mugen MTX-3	JP X-12	Mugen 30	Mugen	Kawahara	Protoform	Airtronics
6	9	Brian Berry	Serpent WOA710	Mega	Fantom 30	Mega	Ellegi	Protoform	KO Propo
7	10	Ron Atomic	Kyosho FW05R	OS R Spec	White Lightning 30	Kyosho	Mono Tuning	Parma	Futaba
8	4	Josh Cyrul	Kyosho FW05R	Werks LC Mod	Fantom 25	RD Logics Turbo	Jaco	Parma	KO Propo
9	6	Kyle Skidmore	Associated NTC3	JP XR12	Rocket Science 30	Associated	Jaco	Protoform	Airtronics
10	B	Brandon McNally	Serpent WOA710	Mega	Blue Thunder 30	Mega	Ellegi	Protoform	JR

B = Bumped up from B-Main

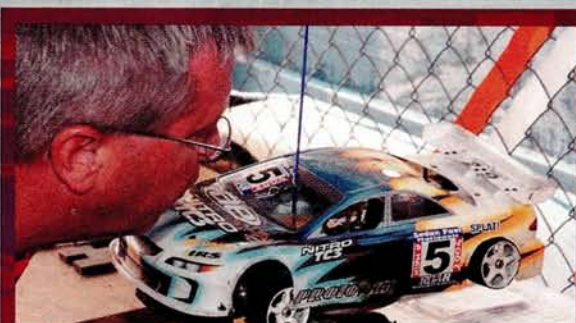


A large tent was set up so that the racers could pit in comfort. Many racers set up their own tents throughout the facility.

"Cigarette smoking and fuel do not mix!"
Accidents will happen when you don't use any common sense.



Each car was weighed and then carefully measured in tech row. The rear bumper height, roof height and size of the cooling holes were all checked, and that gave some racers fits.



The remains of Team Associated driver Mike Blackstock's car is weighed in tech row. The car was under the legal weight, but the officials changed their ruling after the car was weighed a second time.

TOUGH TECH

With it being the Nationals and all, it wasn't just the racers that stepped up their game. The $\frac{1}{8}$ Racers of Toledo rounded up a crew of volunteers (including a few Canadians) to run the tech inspections. I counted 13 inspections that took place on every car after every run, and that includes qualifying rounds. How about having your fuel tank capacity (including tubing) tested every round? Or having a run disqualified because your rear bumper was too high, even though you cut on the body manufacturer's score lines? Rick Davis designed an inspection box worth thousands of dollars that is certified yearly by the National Institute of Standards and Measurements as an auto industry-quality calibration device. Suffice it to say that the tech team made sure that every racer was more than familiar with the ROAR handbook.

David Lee acted as track referee for the event and carefully worked to make sure that the drivers had a clean race. The club set up a special P.A. system so he could issue warnings and stop-and-go citations audible only to the drivers on the stand. All in all, the tech crew and referees may not have been the most popular guys at the event, but these volunteers pulled through to help make this year's Nats run more smoothly than any I've seen.

THE END

This was the most exciting race I'd been to in a while; the outcome wasn't certain until the end. Right up to the end, several racers had a good chance at the championship. Congratulations, Atsushi Hara—ROAR 2004 Fuel Sedan National Champion! Hope to see you there next year. ■

howto

Squeeze more power out of your Savage mill!

The HPI Nitro Star S-25 is the engine included with Savage 25 RTRs and Savage SS monster trucks. It's a large-displacement engine with good horsepower, but on closer inspection, the S-25 shows room for improvement. I'd like to change the way the engine noses over once it reaches the low 30,000 rpm range and strengthen its bottom-end grunt.

The crankshaft induction timing and the exhaust timing need a few tweaks, but other steps can be taken to significantly increase its power. Smoothing the airflow inside the engine, modifying the piston skirt and changing head clearance to increase compression will really bring this engine around.

powerporting

HPI nitro

TOOLS YOU'LL NEED

- Precision calipers with depth bar and hardened jaws for scribing
- Dremel tool
- Carbide-cutting, stone and rubberized grinding bits
- Fine-point Sharpie marker

The ABDCs of engine timing

There are some confusing terms associated with engine-timing notation. There are ABDCs and BBDCs, and they can be a little difficult to decipher. So, this is a crash course in Engine Timing 101 to explain the terminology.

TDC = Top Dead Center (piston at the highest point in the cylinder)

BDC = Bottom Dead Center (piston at the lowest point in the cylinder)

BTDC = Before Top Dead Center

ATDC = After Top Dead Center

BBDC = Before Bottom Dead Center

ABDC = After Bottom Dead Center

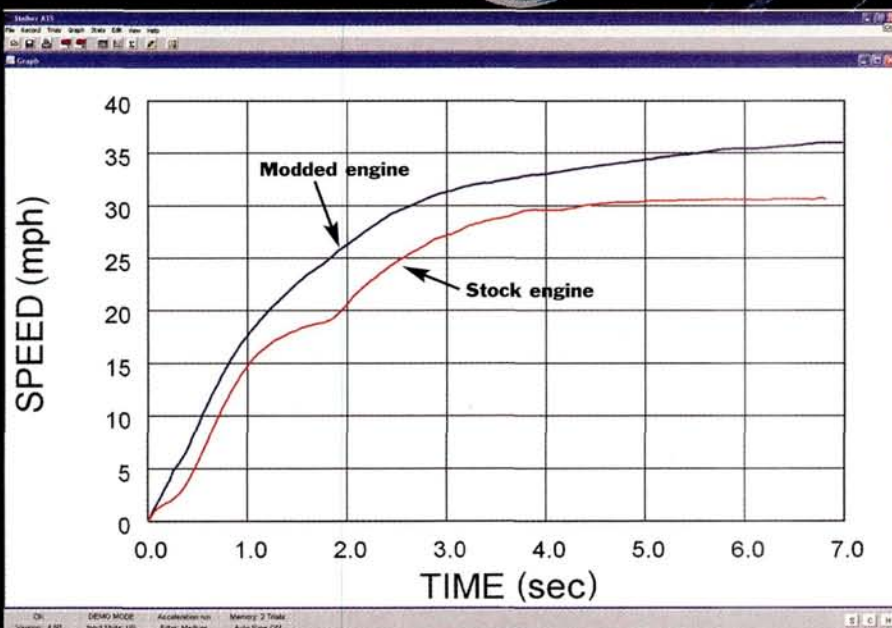
Crankshaft rotation is measured in degrees. There are 360 degrees in a full rotation, so the events that take place inside the engine are notated in degrees of crankshaft rotation. This doesn't seem all that confusing, but cranial engineers couldn't live with a simple system of notation in actual degrees, it had to be broken down into 90-degree segments. So, instead of 127 degrees of rotation, it's expressed at 53 degrees BBDC. Likewise, 345 degrees of crankshaft rotation is pretty self-explanatory—the piston is 15 degrees away from top dead center. But the accepted method of expressing timing would have us refer to this as 15 degrees BTDC instead of 345 degrees.

Performance

Evaluating the performance of my newly ported S-25 engine is as simple as a short break-in followed by some hard thrashing under the discriminating eye of the Stalker ATS system. I set aside a fresh 25 RTR to establish the baseline performance for a box-stock machine.

The acceleration of the stock machine is pretty strong, but it would only occasionally pull a wheelstand. The size, weight and suspension configuration of the Savage doesn't lend itself to easy wheelstands, but good horsepower will make it happen. The stock engine covers 132 feet in 4.40 seconds at 30.05mph, and it hits a top speed of 30.72mph in 6.78 seconds. Not bad stats, but the modified engine shows considerable improvements. With the modified engine, acceleration almost always produces a wheelstand, and the top end shows a lot of improvement as well. The modified Savage crosses the 132-foot mark in 3.89 seconds at 34.7mph and now hits an impressive top speed of 36.37mph in the same 6.78 seconds. The acceleration data show that after just 6 seconds, the modified engine pulls out to an advantage of more than 35 feet.

The testing results show a marked improvement in performance, which is encouraging, given that this engine wasn't modified to the fullest. The exhaust-port duration was only increased to 160 degrees and the induction timing to 190 degrees. Opening the aforementioned to 170 and 210 degrees, respectively, would have a more dramatic impact on performance. It should be noted that the stock clutch started slipping once the modified engine was about halfway through its first tank, so upgrading the clutch to something like the Werks Power Clutch (werksracing.com) or a good aluminum racing clutch would produce more consistent performance even with the more powerful engine.



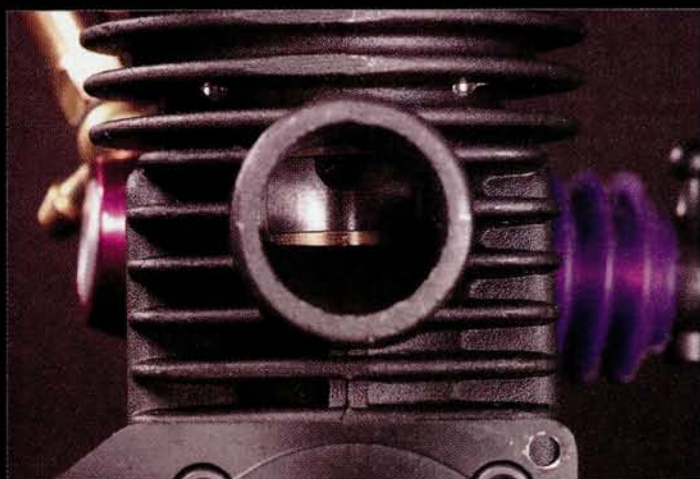
Note the mid-range stumble from the stock engine just before the shift to second gear. The top speed ranges in the very low 30s with the best possible mixture setting. The modified engine indicated by the blue line is 12 percent quicker to the 132-foot line and in the same time, reaches a top speed of 36.37mph—nearly 20 percent faster.

If you can't afford to junk your engine, stop now

If you can't afford to throw away your engine, you shouldn't make any of these mods. If you take your time and are patient, it's unlikely that you'll destroy your engine, but a slip with the grinding tool or a mental goof could turn your engine into a paperweight. If you can't afford it, don't even consider modifying your engine.

Star S-25

by Steve Pond



Notice how the piston sleeve is exposed when you look through the exhaust port of a stock engine. When the porting job is complete, this view will look completely different.

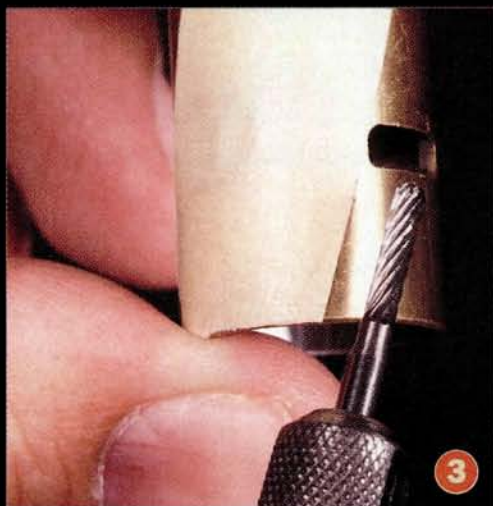
Piston sleeve

The current exhaust-port timing is very conservative; it opens at 78 degrees before bottom dead center (BBDC), which means the exhaust port is open only for 156 degrees of crankshaft rotation; 156 degrees of total duration isn't way out of the ballpark, but performance can benefit from an increase in duration. The following are the amounts of material that need to be removed to achieve the exhaust duration listed below. Be forewarned that opening the exhaust port to 165 or 170 degrees duration will also require a little work to the top of the port in the engine block.

- | | |
|-----------------------------|--|
| 160 degrees duration | Raise the top of the exhaust port 0.012 inch (0.3mm). The top of the port will be 0.692 inch (17.58mm) from the bottom of the sleeve and 0.530 inch (13.46mm) from the top of the sleeve. |
| 165 degrees duration | Raise the top of the exhaust port 0.025 inch (0.64mm). The top of the port will be 0.705 inch (17.91mm) from the bottom of the sleeve and 0.517 inch (13.13mm) from the top of the sleeve. |
| 170 degrees duration | Raise the top of the exhaust port 0.035 inch (0.89mm). The top of the port will be 0.715 inch (18.16mm) from the bottom of the sleeve and 0.507 inch (12.88mm) from the top of the sleeve. |



First, make a mark on the bottom of the piston sleeve in line with the edge of each transfer port—closest to the exhaust port.

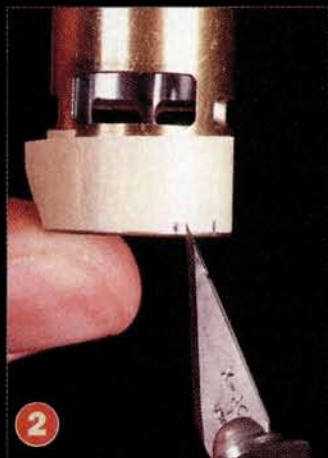


Take a fresh piece of tape and align the bottom edge with the second mark you made in the sleeve. Align the top of the tape with the edge of each Schnuerle port. This indicates the proper angle of the ports in the engine block.

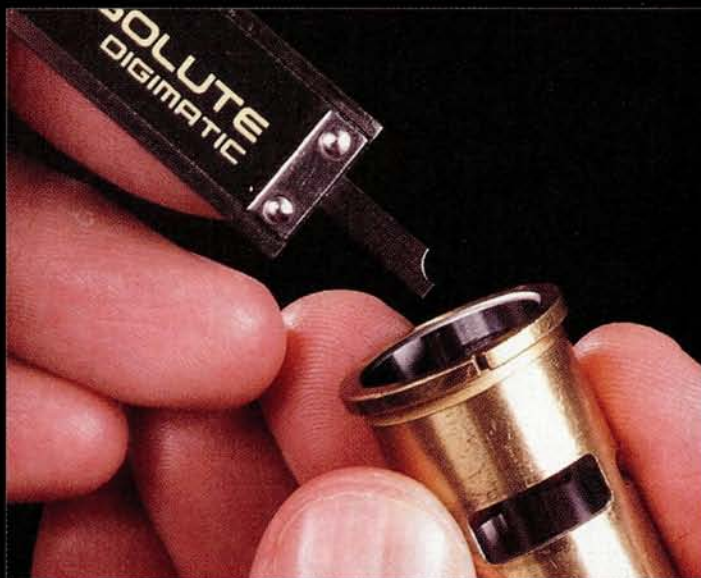
The timings of the boost and transfer ports are in the proper range, so you don't have to mess with them. To improve flow, round the bottom of the sleeve, and cut a pair of pseudo guide ports near the back edge of each Schnuerle port. It's important that the guide ports match the angle of the transfer passages in the block, so follow the next step to match the angle of these ports.

With a hobby knife, scribe a light line along a small steel ruler at the bottom of the sleeve that's inline with the edge of the port nearest the exhaust port. Then, on a piece of tape, draw two lines 0.22 inch apart. Place one line on the mark you already scribed in the sleeve; then position the second line closest to the exhaust port. Scribe another mark in the sleeve where the second mark on the tape is. Then, run a piece of masking tape from the second scribe to the edge of the transfer port. This will match the angles of the passages in the block and make the work performed on the outside of the sleeve most effective.

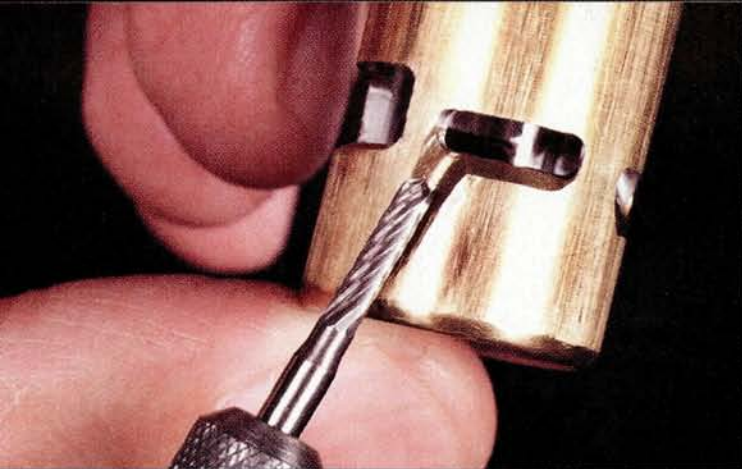
The last step is to round the sleeve's lower edge to allow the air/fuel mixture to flow more smoothly into the various ports that are on the outside of the sleeve. A sanding drum or a rubberized abrasive wheel usually does the trick here.



Mark a piece of tape with two marks 0.22 inch apart from each other. Then, align one mark with the previous scribe, and orient the other closest to the exhaust port on both slides of the sleeve.



A caliper with a depth bar can be used to measure the exhaust-port height. Simply set the desired measurement and regularly use it to check your porting progress.



Above: work slowly and deliberately with a sharp cutting tool to form these grooves to better guide the intake charge as it enters the cylinder. The tape is removed for illustration purposes, but it should be left in place to avoid accidental damage to the sleeve.



The finished sleeve on the right features a chamfered bottom edge to smooth the flow of air and fuel from the crankcase into the transfers.



The two boost ports are simply reshaped along their bottom edge to improve flow. This reduces turbulence in these ports, which translates to increased flow.

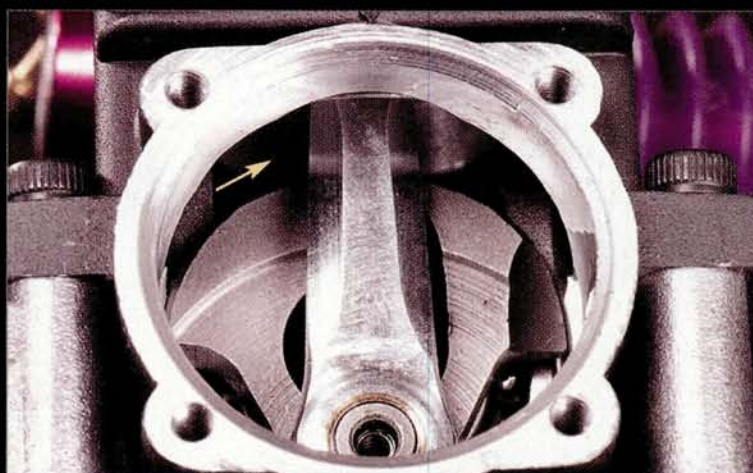
Burrs are bad

In past articles, we've outlined generic mods that can be made to just about any engine, but this new series takes it to the next level by showing you how to work on the ports themselves. Having the specifics mapped out for you makes it easier, but you're still getting into the ports and other areas that require a little more TLC. If you resize a port, be careful and deliberate with your grinding, but always follow up with a light chamfer in the port when you've finished all the big grinding. This ensures that no sharp burrs are left in the cylinder, and that, in turn, keeps the piston in good shape. It's also a good practice to seal bearings or remove them from the engine block if any grinding work is required. Small shards of metal can harm the engine bearings pretty quickly.



Measure 100 times, cut once

You've probably heard the saying "Measure twice, cut once," a few times before but it's even more critical to be sure that you're removing the right amount of material at all times when you're working inside an engine. There isn't much room for mistakes, so it's best to be overly cautious when you're mapping out the modifications you'll make to your engine. Measure again ... and again ... and again ... until you're certain of where to make any cuts and how much to remove. Modifying an engine isn't very difficult once you know where to make the mods, so don't be overly concerned about touching the inside of your engine. Just be patient and careful when you do; it greatly increases your chances of success.



There's a passage for the boost port in the back of the cylinder, but with the piston at BDC, you can see how the skirt blocks flow to that port.



The modified piston on the left allows better flow to the boost port even when the piston is at BDC.



The modified piston skirt now allows flow to the boost port even when the piston is at BDC. This increases the flow of air and fuel into the cylinder, which makes more power.

Piston

You can also modify the piston skirt to improve engine performance. When the piston is at bottom dead center (BDC), the piston skirt comes down into the cylinder and prevents some of the air/fuel mixture that would have made its way through the boost port from entering. Cutting the piston skirt will help to improve the flow of air/fuel mixture to the boost port, and that will improve overall power delivery. With the engine block's backplate removed, look into the block and identify the section of the piston skirt that obstructs the boost port. Use a permanent-ink marker to draw lines where the piston skirt should be cut. The dimensions aren't absolutely critical in this operation, but you should make the cutout as symmetrical and as precise as possible. The finished cutaway on the engine I ported measures 0.540-inch wide by 0.375 tall.

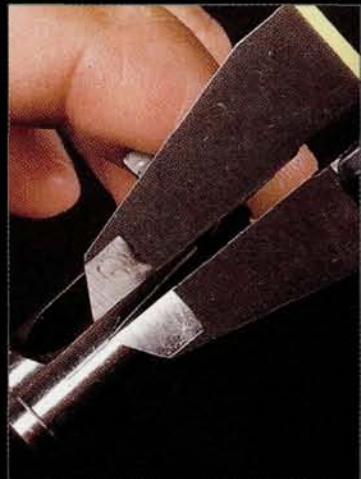
Crankshaft

The crankshaft requires the most work. For a performance engine, the S-25's induction-port timing is pretty far off the mark, so we have to bring this crank into spec to produce more horsepower.

The induction port opens at 34 degrees ABDC, and that's pretty typical of a powerful engine; its closing point needs attention. It closes at just 42 degrees ATDC, so the crank port is open only for 188 degrees of crankshaft rotation. The longer the crankshaft induction port remains open, the more air and fuel enter the engine, and that usually means more horsepower. There are limits to how long the induction port can remain open without harming performance, but the S-25's crankshaft needs to be opened up to improve performance.

With the tip of the crankshaft facing you, open the right side of the port 0.098 inch or about 2.5mm so that the induction port closes at 64 degrees ATDC; it will now remain open for 210 degrees. You can't have the port stay open much longer than that without negative consequences. I prefer to have a sharper edge on the right side of the opening because that's the leading edge; the shape of the left side of the port is less important. This is also an area where the dimensions must be precise.

In addition to opening the port, I used a round grinding stone to smooth the bore of the induction port, and I smoothed and rounded the factory porting work around the crankshaft counterweight. Some of their edges were a little rough, so I smoothed them for increased airflow.



Scribe the crankshaft induction port with a good caliper to determine how much material should be removed.



The flow out of the crankshaft center port can be improved by smoothing rough or sharp edges around the exit of the port. A polished finish isn't necessary—simply a smooth finish. Note the smoother center port of the modified crank on the left.



The induction port on the left has been opened on its right side to increase the duration of the port opening. The rough edges of the opening have also been smoothed for increased air/fuel flow.

Block

I had to open the top of the exhaust port on the block to match the port dimensions of the sleeve. You can't raise the top of the exhaust port in the sleeve more than about 0.012 inch without having to tweak the block. You could do more work in the block, but the returns on your hard work would be greatly diminished.



The S-25 engine comes with three shims installed. This creates excess head clearance that reduces horsepower. One shim can be removed without question; a second shim can be removed, but head clearance should be verified at no less than 0.012 inch.



Increasing the exhaust-port duration to more than 165 degrees will require a grinding of the engine block to raise the port opening slightly. It takes a little more time, but it pays off if you decide to go with the more aggressive port-timing specs.

"Other" mods

The head clearance of the stock S-25 engine is very generous at 0.029 inch with three 0.008-inch shims installed. This clearance is very high, and that limits horsepower because the air/fuel mixture isn't being fully compressed. I removed two of the shims to knock the head clearance down to 0.013 inch. Be sure to check the head clearance on every engine before you run it because they're all different.

SOURCES

HPI RACING 949-753-1099; hpiracing.com.

Do NOT attempt these mods on any other engine

The specs and modifications outlined in this article are only for HPI's Nitro Star S-25. They're based on precise measurements of the stock timing events inside this particular engine, and they do not apply to any other engine. Even engines that appear to be similar may already have subtle differences in timing events that are not visible. Engines differ, so there isn't any way to know whether these mods will be helpful or fatal to another engine. The bottom line: you should only do these mods to an S-25. We'll be doing more of these ground-breaking articles, so if you'd like to see what you could do to your engine, drop us a note and well put it on the to-do list.

maxxoverdrive

YOUR TRAXXAS MAXX SOURCE



BY JOHN HOWELL



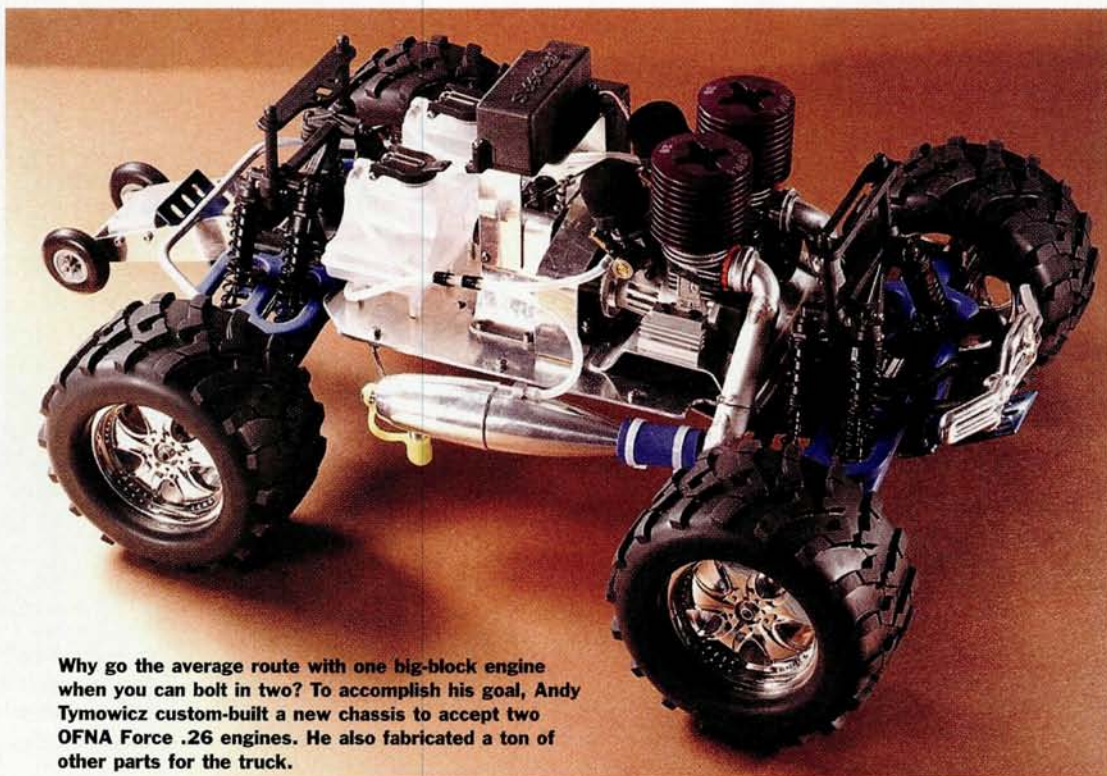
Twin terror!

A few months ago, we gave you a glimpse inside the insane mind of Andy Tymowicz with his wild-looking, triple-engine T-Maxx (*RC Car Action*, August 2004). Well, it seems Andy has been up to his old tricks again, but this time, he took a decidedly milder approach with his new twin-engine monster. "I wanted to build something that I could drive everyday," says Andy. "The triple-engine truck was definitely more of a show truck than a daily runner."

CUSTOM FRONT-ENGINE CHASSIS. After researching other multi-engine project trucks on the Internet, Andy decided on a different approach. He noticed that there were plenty of rear-engine-mounted trucks, but no front-engine versions. His first step was to machine a custom chassis that could accommodate a forward-mounted, twin-engine platform. Using a raw slab of 6061 T6 aluminum stock, Andy machined a chassis that was an inch longer than stock. He modified a cutout for the transmission so it could be mounted closer to the front of the vehicle.

SWAPPED SAVAGE TRANNY. As an experiment, Andy ditched the stock Maxx tranny for an HPI Savage unit that he had lying around. "I had a spare tranny sitting there, so I decided to try it out," added Andy. "In the end, I actually found it a little harder to work with and set up, so I'll probably stick with the Maxx tranny in future projects."

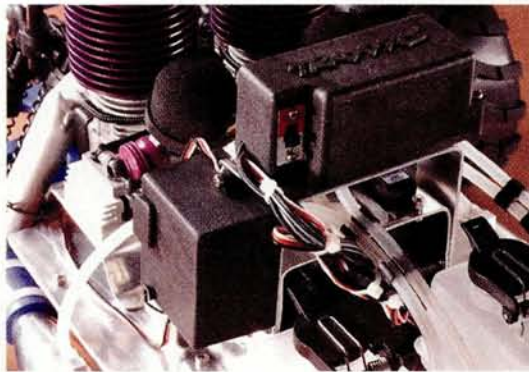
To mount the engines toward the front, Andy had to flip the tranny around backward (the diffs also had to be flipped around so they would rotate backward as well). After he mounted the tranny on the chassis, Andy fabricated a set of engine mounts out of aluminum stock.



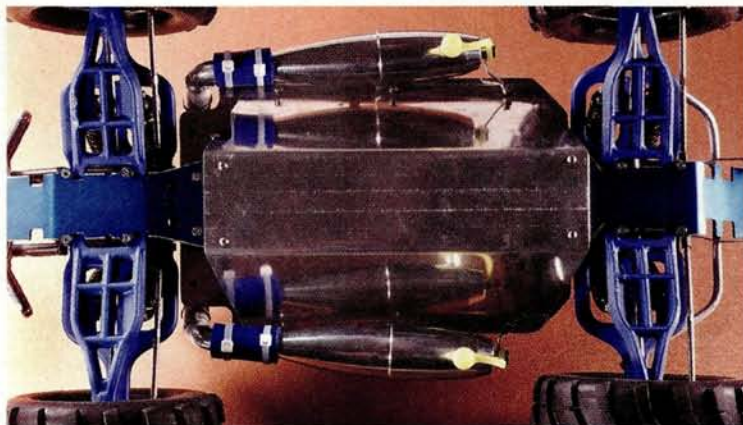
Why go the average route with one big-block engine when you can bolt in two? To accomplish his goal, Andy Tymowicz custom-built a new chassis to accept two OFNA Force .26 engines. He also fabricated a ton of other parts for the truck.



Andy's wild, twin-engine Maxx has nearly 5hp on tap thanks to these OFNA big-blocks. Since each engine has its own fuel tank, runtime isn't a problem for this thirsty beast!



A custom radio bracket was made from a thin sheet of aluminum (fashioned in the shape of an upside-down "U"). Andy uses mostly stock Maxx radio gear.



Above: for additional strength, Andy designed a solid center skid that spans between the front and rear bulkheads.



Left: to help keep the truck steady on its feet, Andy fabricated a rear swaybar and wheelie bar out of spare aluminum material.



Bright blue RPM suspension arms and bulkhead braces can be found at each corner.

RADIO TRAY. When the engines were bolted in place, Andy made a radio-tray bracket shaped like an upside-down "U." After it was bolted together, he set his sights on building the throttle-linkage/servo assembly. He decided to use one Expert SL300 servo (a brand popular in the model-airplane world) to handle the throttle duties for both engines. Andy was able to retain the stock-Maxx throttle linkage but had to tweak it before it would work in its new setting.

POWER PICK. For power, Andy chose two OFNA Force .26 engines (each puts out a claimed 2.41hp). "The truck pretty much smokes anything I've come across," says Andy. "It lights up the tires on the pavement like mad!" To feed fuel to the thirsty big-blocks, Andy rigged the truck with two fuel tanks. His reasoning was that since a big engine can go through fuel pretty fast, why not increase the capacity?

EXHAUST ISSUES. The hardest part of the project was the exhaust. Andy tells us that plumbing the exhaust for a front-engine setup was more of a challenge than he had thought it would be. "Of all the things I had to do during the building of this truck, making the elongated headers was the hardest task," he said. "Actually, it wasn't exactly the fabrication that

was difficult; it was finding the right material to make the very long headers. I eventually found aluminum tube that suited my needs and, after that, the truck was almost finished." To help complete the exhaust system, Andy turned to his friend Dan Torville (who also helped him with the triple-engine project truck) to weld all the headers and make sure that they fit the OFNA pipes he had selected.

FINISHING TOUCHES. With the power train in place and the radio components and fuel tanks squared away, Andy went to work on the finishing touches. To handle the additional power, he fabricated heavy-duty driveshafts and beefed up the differentials with aluminum-gear units. Next, he bolted on a set of RPM blue T-Maxx arms, a custom rear swaybar and an HPI Jeep Rubicon body. Andy also machined a wheelie bar from leftover 6061-T6 stock. ■

SOURCES

EXPERT ELECTRONICS distributed by Horizon Hobby Inc. (800) 338-4639; horizonhobby.com.

HPI RACING (949) 753-1099; hpiracing.com.

OFNA RACING (949) 586-2910; ofna.com.

RPM RC PRODUCTS (909) 393-0366; rpmmcproducts.com.

TRAXXAS CORP. (888) 872-9972 (customer support); (972) 265-8000; traxxas.com.



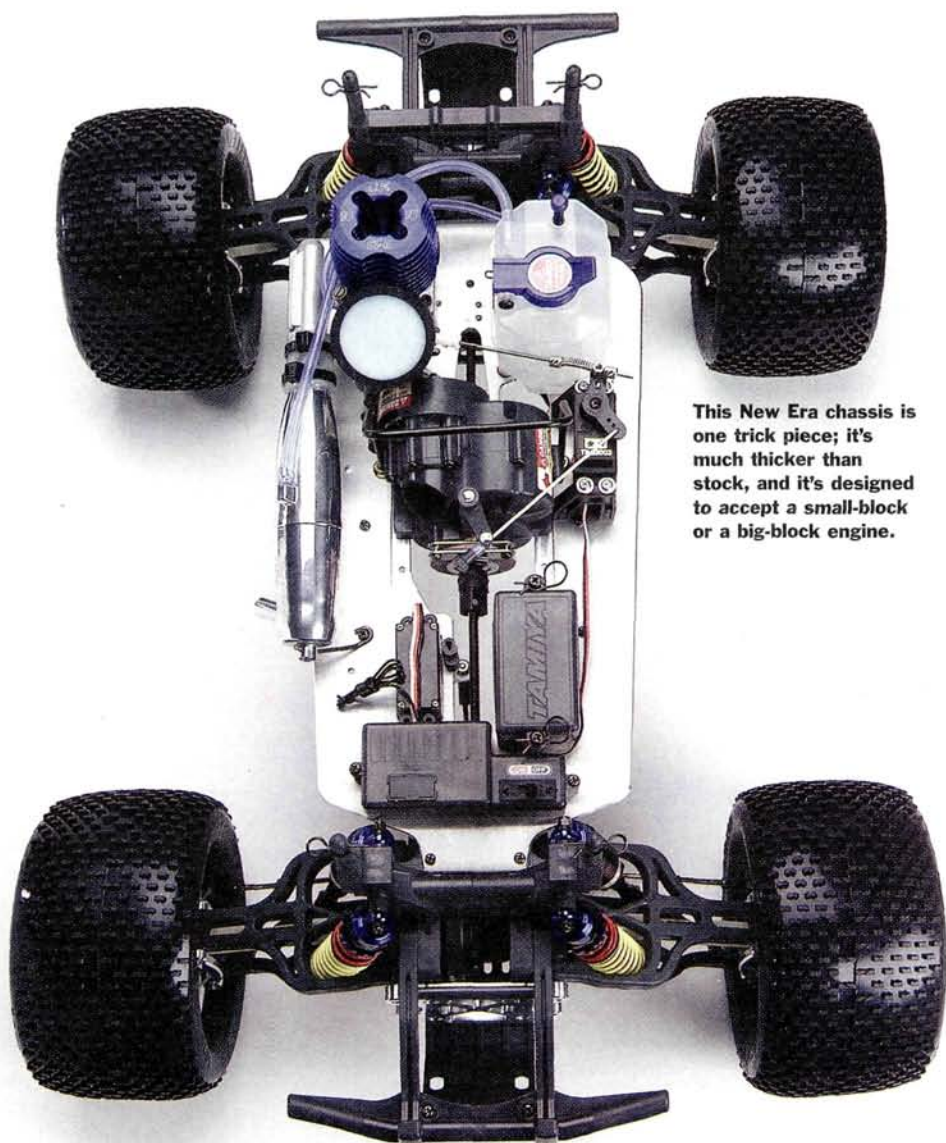
4x4

the truck stops here

BY KEVIN HETMANSKI

Race-ready Tamiya TNX

Tamiya's TNX has done very well at some of the country's biggest monster races. It finished second and third at the Pro-Line Maxx Challenge and first and second at our very own Monster Madness race. After seeing what it can do on the track, I couldn't wait to get my hands on one. It's fast out of the box, but with the right tires and a few tweaks, it can take on anything in the MT class. Here's how I modded mine.



This New Era chassis is one trick piece; it's much thicker than stock, and it's designed to accept a small-block or a big-block engine.

parts list

Tamiya TNX—43508, \$380

CHASSIS

NEW ERA

Aluminum chassis—TNX106SD, \$46

SUSPENSION

NEW ERA

■ Bulkhead brace (2)—TEC340, \$17/pr.

■ C-hubs (2)—TEC403, \$40/pr.

PRO-LINE

■ Power Stroke shocks—6025-00, \$200

BODY TIRES AND WHEELS

PRO-LINE

■ 13- to 15-in.-wheelbase Ford F-350—3141-00, \$31

■ Bow Tie tires (2)—1079-00, \$29/pr.

■ Maxx Velocity wheels (2)—2660-04, \$14/pr.

ENGINE & ACCESSORIES

OFNA

■ Shaft start—5000, \$40

O.S. ENGINES

■ .18 CV-R engine—11874, \$115

■ T-1040 pipe—72103056, \$68

ELECTRONICS

AIRTRONICS

■ M8 radio—90280TX, \$195

KO PROPO

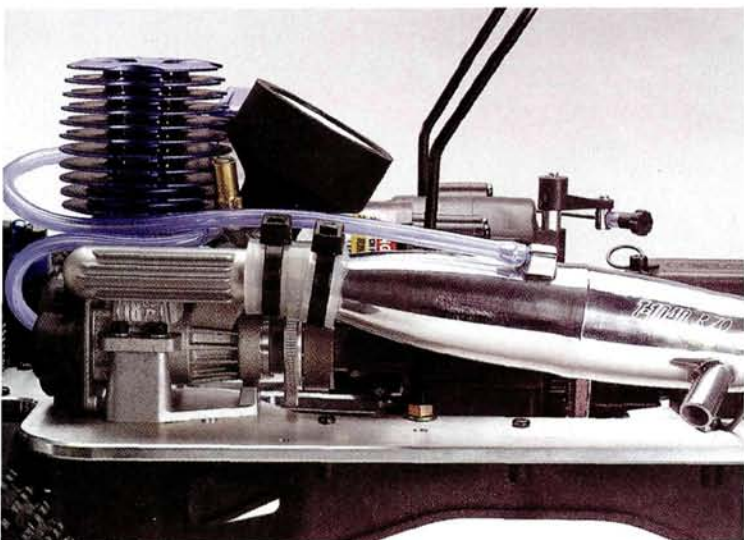
■ Servo—PDS-764 ICS, \$55

NOVAK

■ Switch 75MHz module—2680, \$115

■ 75MHz Xtra receiver—2675, \$90

Total \$1,530



An O.S. engine is now in place of the stock TNX engine. The exhaust flows through a good-looking O.S. tuned pipe.

O.S. POWER

This is one mod you don't need to make, since the TNX's O.S.-built stock engine is exceptionally powerful. But in the interests of science, I wanted to see what an engine swap would require, so I replaced the stock engine with a new O.S. Engines .18 CV-R. It's available with a slide or rotary carb and with or without a pull-starter. I replaced the engine's pull-start on the engine with an OFNA system. It's easy to install: just take out the four screws that hold the pull-starter in place, remove it, install the gear drive for the shaft starter and reinstall the screws. There's plenty of access to the drive cup because the starter shaft goes through the rear shock tower.

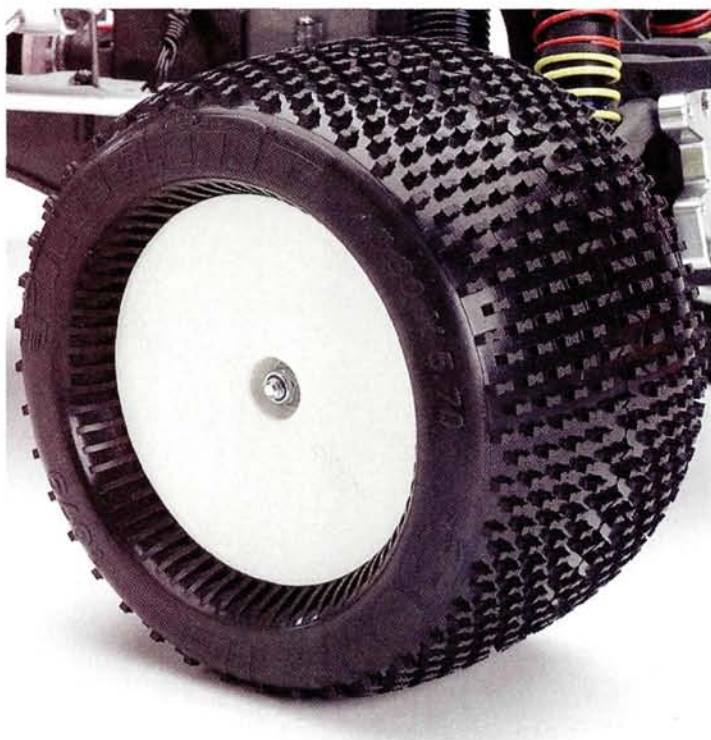
BETTER BREATHING

I replaced the stock composite tuned pipe with one from O.S. Engines that breathes better. It features a polished finish and a large stinger through which the exhaust exits. The header end of the pipe has a small lip to prevent it from slipping out of the coupler.

PRO-LINE SHOES

I replaced the stock tires with a new set of Pro-Line Bow Ties. Thanks to their soft compound and firm inserts, they are dialed on just about any

track. Traction is very important, especially when you bolt in as much power as I did. Since the stock tires are factory-glued to the rims, I had to buy new ones. In keeping with the race theme, I decided to use a set of Pro-Line dish wheels.



Pro-Line tires hook my truck up! They're glued to Pro-Line's dish wheels.

PRO-LINE BODY

You can run a modified truck with a stock body, but that just wouldn't be right, so a Pro-Line F-150 got the nod. I went with an easy paint job, and by that, I mean I sent it to Bill Zegers, who painted it for me. You need strong fingers when you cut this body; the Lexan is really thick, and that's good because the body could hold up to a nuclear blast.



I didn't want my TNX to look like the others at the track, so I dropped a Pro-Line F-150 body onto the posts. Bill Zegers handled the paint for me.

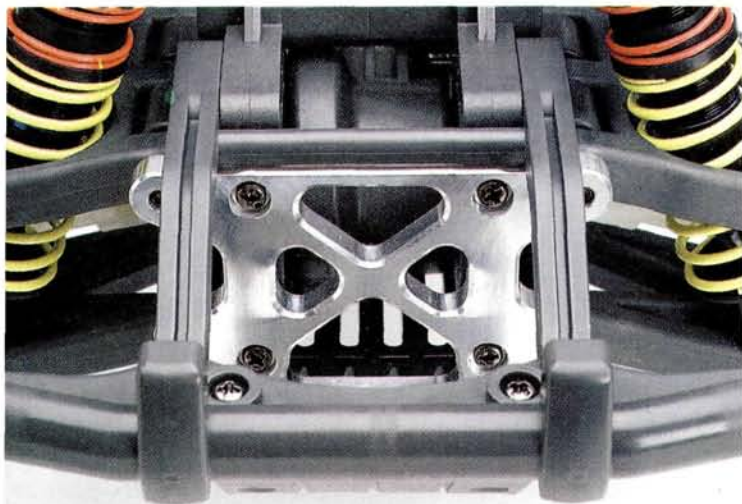
INSIDE DAVID JUN'S FACTORY TNX

When the guys from Tamiya were at our Monster Madness race, they asked me to ship a few things back to Tamiya America for them. One of those items happened to be David Jun's full-race TNX. I took a look at it to see which kind of tricks I'd be able to copy to make my truck faster, but I was surprised to see that he hadn't changed much.

DAVID'S TNX MODS

- Pro-Line shocks
- Pro-Line Bow Tie tires and Velocity wheels
- OFNA shaft start
- Futaba 3PK radio
- Futaba S9451 throttle and brake servos
- Peak 1200mAh receiver pack





This aluminum brace strengthens the truck's suspension. It's machined to look good and reduce weight.



All the machined pockets under the chassis lighten the load.

with this brace on board. I know that when you build a race truck, you want to minimize its weight, but in this case, I sacrificed weight for durability. Check out this aluminum chassis from New Era; it's sick! It's thicker and more rigid than the stock chassis. What about the weight of that thicker aluminum? No worries; aluminum has been machined out in low-stress areas to reduce weight.

Now for the cool part: the new chassis layout allows you to choose anything from a stock small-block .18 engine to an oversize big-block powerhouse. The engine-mounting holes on the New Era chassis are slotted to allow you to change gear ratios and adjust gear mesh.

POWER STROKE SHOCKS

Now for the best part: a set of Pro-Line Power Stroke shocks. I mounted two on each arm. The "Progressive" shock is filled with fluid in the usual way and has a dual-rate spring setup. One spring takes care of damping over small bumps, and the other soaks up the larger ones. The "Bypass" shock is un-sprung and purely for damping, and its damping

rate increases as the piston moves through the shock body. Because they were originally designed for the T-Maxx, the cooling fins on the first production run of Power Stroke shocks interfered with the suspension arms on the TNX, but the latest versions are a direct fit. I had the older style, so I modded them to fit.

rate increases as the piston moves through the shock body. Because they were originally designed for the T-Maxx, the cooling fins on the first production run of Power Stroke shocks interfered with the suspension arms on the TNX, but the latest versions are a direct fit. I had the older style, so I modded them to fit.



DRIVETRAIN & CHASSIS BEEF

The suspension gets a workout on any monster truck. The combination of the weight of the truck and the wheels working against one another can wear out parts in a hurry. Aluminum hubs from New Era replace the stock plastic units. They are direct replacements and come with all the necessary mounting hardware.

I replaced the stock molded bulkhead brace with an aluminum one—also from New Era. Those bulkheads aren't going anywhere

ELECTRONIC UPGRADES

The TNX's stock steering servo has plenty of torque to steer the truck around the yard, but I wanted something better for the track. I replaced it with a PDS-2144 FET ICS servo from KO Propo. It offers 104 oz.-in. of torque and a transit speed of 0.13 second.

The stock radio lacks the frequencies and features that are valuable when racing, so I went with my trusty Airtronics M8. It has every feature you could ever want, including, dual rate, exponential, ABS braking, 10-model memory and more. Installing a Novak 75MHz switch and an XXtra receiver solved the frequency problem. With a twist of the dial on each unit, I can use any 75MHz frequency.



For better steering response, I installed a more powerful steering servo from KO Propo.

SOURCES

- AIRTRONICS (714) 978-1895; airtronics.net.
- GREAT PLANES MODEL DISTRIBUTORS (217) 398-6300; (800) 682-8948; greatplanes.com.
- KO PROPO USA INC. (310) 532-9355; kopropo.com.
- KYOSHO distributed by Great Planes Model Distributors; kyosho.com.
- NEW ERA MODELS, (603) 888-4453; neweramodels.com.
- NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.
- OFNA RACING (949) 586-2910; ofna.com.
- O.S. ENGINES distributed by Great Planes Model Distributors; osengines.com.
- PRO-LINE (909) 849-9781; pro-lineracing.com.
- TAMIYA AMERICA INC. (800) 826-4922; tamiyausa.com.
- ZEGERS R/C GRAFFIXX (561) 988-5411; zegersrcgraffixx.com.

TALK TRUCK!

Send your "4x4" questions and comments to Kevin Hetmanski, kevinh@airage.com.



body shop

secrets from the paint booth

BY JOSHUA THIEL



Let There Be Light

I'm sure you've heard the saying that the real fun starts when the sun goes down. That may be true of most things, but it doesn't usually apply to RC—especially if you accidentally smash your ride into a curb at full speed because you can't see it in the dark! Luckily, there are ways to add running lights to your car that will supply needed visibility and trick scale realism for nighttime runs. Take a look, as I shed some light on installing scale RC automotive lights.



THE LOWDOWN

To demonstrate a lighting installation, I decided to create a Le Mans-style endurance racer on a super-realistic Tamiya Raybrig NSX Japanese Grand Touring Championship (JGTC) body. I adapted a series of light kits from RAM Inc. to create dual headlights, side-marker lights, taillights and brake lights. These kits come with prewired LED lights that typically use a 9V battery for power, but I rigged most of them to run off the drive battery instead. I painted the body in single-tone blue and backed it with black paint to minimize any stray light that could leak through from inside the body. The extensive decals supplied with the body finished off the exterior.



TINTING

For a very basic light installation, individual LED bulbs can be installed in mounting holes that have been drilled into the body. To create a more scale appearance, I mounted all the lights in the body so they would project light through it for a realistic lens effect. I masked off the headlights, taillights and side markers and then painted these areas with transparent colors that would tint the light as it shines through. Using Anodized Metal paint from Spaz Stix, I applied yellow to the headlights, green-blue to the side markers and red to the tail and brake lights.



LIGHT MOUNTS

The lights must be held securely for them to look right and so they won't get knocked off or damaged when you drive your car. A good solution is to build mounting brackets to house the lights inside the body and behind the lens areas. I carefully cut and bent pieces of thick, scrap Lexan to hold the LED bulbs and properly direct the light pattern. I used a reamer to cut holes for the LED bulbs.

WIRING

You have two choices when you wire power to the lights: use the supplied connector on a standard 9V alkaline battery or add connectors and splice them directly into an electric vehicle's main chassis' power (7.2V or higher). To illustrate both options, I kept the original wiring configuration for the side markers for use with a 9V battery, but I constructed a wiring system for the main headlights and running lights. After I soldered the lights' negative leads to an old battery connector, I attached the positive leads to two sub-mini slide switches (from RadioShack). I then attached the switches to one end of a connector that leads to the main battery. I constructed a Lexan mounting shelf to hold the switches and attached it to the rear-wing post holes for strength and easy access.

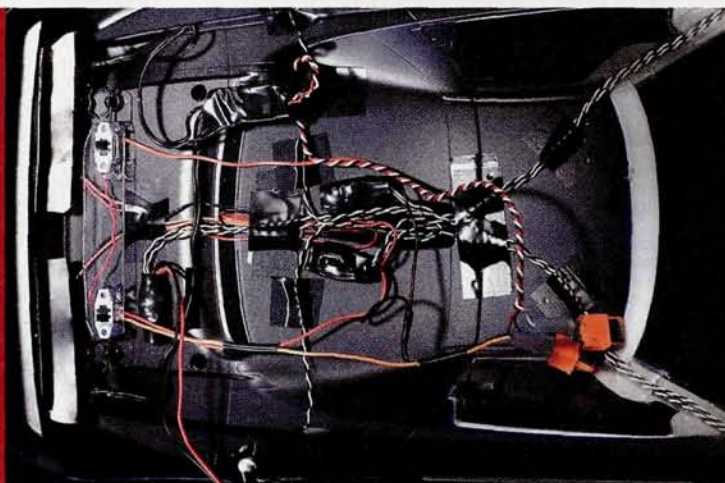
BRIGHT LIGHTS

Before you mount the light brackets, spray them with Spaz Stix Mirror Chrome and back them with black; this will better direct the light through the lenses. For durability and proper alignment, install the LED bulbs in the housings with flexible silicone hobby glue. The rear and side markers are single-piece brackets, but the dual headlights had to be made into a sandwich assembly.



FINAL ASSEMBLY

When I formed the light housings, I cut tabs on their sides to which I applied double-sided foam tape to attach the housings to the body. I positioned each housing carefully and neatly arranged the lead wires from the bulbs along the inside of the body and secured them with tape.



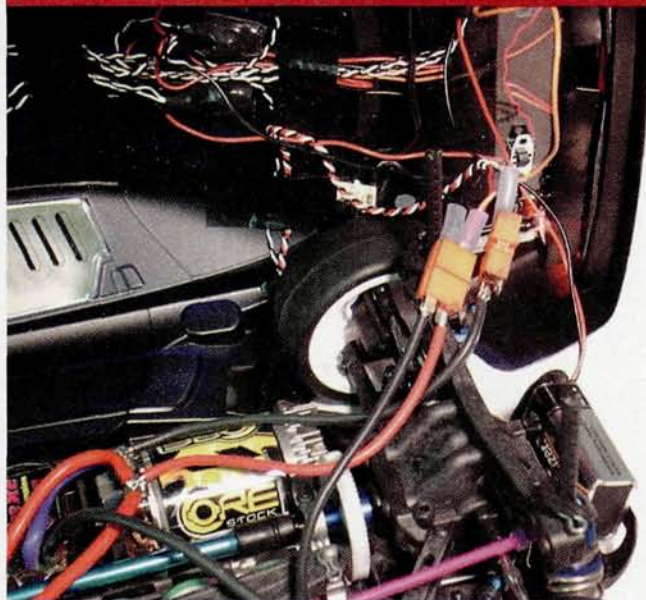


BRAKE LIGHTS

I installed a throttle-activated brake-light set; its setup required that I wire an additional connector to the motor's negative contact. This is perhaps the trickiest part of the installation because for it to work with your ESC, you must cut a lead from one of the brake lights and then resolder to the other side of the control board. This is a challenge for two reasons: the board is only about the size of a postage stamp, and the specific wire that must be soldered depends on the make and model of your ESC, so it can't be clearly designated on the brake-light unit or in the instructions. To identify the appropriate wire, just plug in the system, observe which light operates correctly and then move the lead from the inoperative light to match that of the working light. It's straightforward, but the board's size offers little room for error, and those who aren't comfortable with precise soldering may have difficulty.

PLACEMENT & CONNECTIONS

I soldered a separate set of wires on the chassis' drive battery to send power to everything but the side-marker lights. I attached the leads for those lights to the other side of the connector described in the wiring step. This way, all the wiring, switches and circuitry for the various light systems could be installed under the body and not clutter up the chassis. The 9V battery used to power the side markers was mounted on the chassis' rear bumper. This installation minimizes the use of bulky and expensive 9V batteries and allows the individual light circuits to be controlled with separate switches.



DARK THUNDER

100% BUILT RACE READY RADIO WITH ENGINE AND

0 to 60 in 2 Seconds!

HIGH VELOCITY RACING FUEL

megatech HIGH PERFORMANCE PRODUCTS

M16 HEMI-HEAD

Q SERIES PLUGS & IGNITION

METAL GUARD LUBRICANTS

1.15hp

2 Channel Pistol Radio Included and Installed

Sponsored by "Bad Boy" Winston

DARK Mega

SPECIFICATIONS:

Length: 30" • Front Track: 7.1" • Height: 5" • Ground Clearance: 0.35"

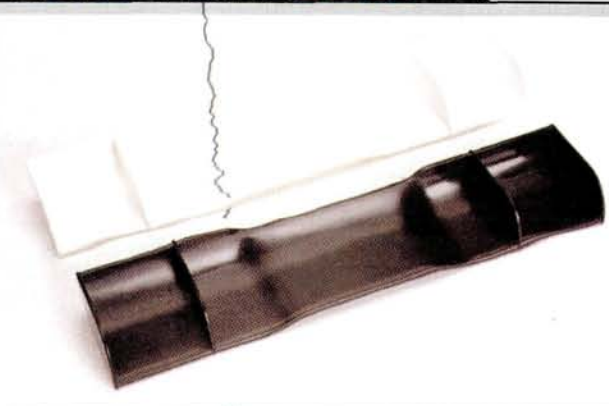
Width: 7.75" • Rear Track: 7.75" • Wheelbase: 24.5" • Weight: 53 oz.

HIT THE LIGHTS

With a fully charged battery onboard, a quick hook up of the connectors and a flick of the switches, this car is ready to light it up. With a little planning and careful wiring, some very cool lighting effects can be added to your ride.



new in the shop



PROTOFORM Injection-Molded Wings

Protoform's new molded-nylon wings for touring cars offer four side dams to ensure rear-end stability under the most extreme conditions. According to Protoform, the wings are far more durable than traditional Lexan wings. The light, super-strong nylon wing is shatterproof, and the wing is available in two widths (190mm and 200mm) and two colors (black and white). Best of all, it costs just \$9!

SOURCES

PROTOFORM INC. distributed
by Pro-Line (909) 849-9781;
pro-lineracing.com.

RADIOSHACK; radioshack.com.

RAM INC. (RADIO CONTROLLED
MODELS) (847) 740-8726;
ramrcandramtrack.com.

SPAZ STIX (800) 622-7223;
spazstix.com.

TAMIYA AMERICA INC.
(800) 826-4922;
tamiyausa.com.

DETAILING DILEMMA?

Send your "Body Shop" questions and comments to Josh Thiel at bodyshop@airage.com.

MEGA DRAGSTER

**CONTROL TOP FUEL DRAGSTER
RADIO INSTALLED**

INCLUDED:

- ✓ Dark Thunder™ Top Fuel Dragster
- ✓ Installed digital 2 channel radio
(over 2600-ft. range)
- ✓ Installed M16 engine
- ✓ Painted body with front and
rear spoilers

**I.E.D.A.
APPROVED
RTR
DRAGSTER
SPEC
CLASS**

**100% assembled and race ready!
60+ MPH In 2 Seconds!**

Professional-grade racing features include:

- 2-speed automatic transmission
- Centrifugal clutch
- Aluminum Disc brakes
- Fully adjustable ride height
- Full-race ball-bearings throughout
- Ultra-traction drag slicks
- CNC machined aluminum construction
- Front T6061 billet aluminum rims



MTC 7810

AVAILABLE AT A



megatech

HIGH PERFORMANCE PRODUCTS

www.megatech.com

(201) 662-2800

© 2004 Megatech International

Kyosho @12 Sports Ferrari 360 Modena

WHEN IT COMES TO "SMALLER THAN 1/10-SCALE" CARS FROM KYOSHO, the first thing that comes to mind is the popular Mini-Z series of 1/24- to 1/28-scale cars. But Kyosho has another series of small cars that bridges the gap between Mini-Zs and 1/10 machines. The unusually named @12 ("at twelve") Sports cars are 1/12 scale, and the Ferrari Modena is the first in the line. It's packed with details like the display-quality Mini-Zs, but it's larger, so the @12 Modena can handle surfaces that are too rough for Kyosho's tiniest cars. Let's drive.

ASSEMBLY

When you open the box, you'll see that almost all of the work has been done for you at the factory. All you need are 16 AA battery cells. Simply install them in the transmitter and car, mount the mirrors, route your antenna and mount the body, and you've finished! You've gotta love it when opening the box is actually considered an assembly step.

The two-piece molded-plastic @12 chassis allows the wheelbase length to be adjusted to suit the many bodies that will no doubt follow the meticulously detailed Ferrari 360 Modena shown here. Molded in

hard plastic, the body is a little heavy compared with the polycarbonate ones we are used to, but the result is worth the minor weight penalty. Since Kyosho used injection-molded plastic, it was able to come up with details that are on par with those on any die-cast car: super-shiny gloss-coat finish, rear taillights, mufflers, headlights and all the scoops and lines are faithfully replicated. To protect the lower front end from getting chipped, Kyosho includes a clear "bumper," and the wheels and tires are ringers for the real things.

Manufacturer's specs

Scale	1/12
Wheelbase	8.7 in. (221mm)
Width	6.6 in. (168mm)
Motor	RK370
Differential	Gear
Radio	Perfex KT-7 FM 2-channel



The @12 has room to spread the electronic gear flat on the chassis, rather than piling it up as most 1/18 and smaller cars require. Note the side-mounted body posts; they spare the Modena shell from the indignity of having ugly posts poke through its hood!



The electronics are a cut above typical RTR fare. Kyosho includes an FM Perfex KT-7 transmitter. Yes, FM—something you hardly ever see on an entry-level car. Servo-reversing, adjustable trims and steering dual rate add to the KT-7's value. The radio signal is sent to the KO Propo-designed Perfex RA-75 one-piece receiver and ESC. The ESC and receiver box have replaceable wires, four FETs and fully proportional forward and reverse. The digital steering servo even uses a steering-rack setup to ensure precise, consistent steering.

TESTING

After taking a few minutes to assemble the Modena and look over the chassis' finer points, I installed the 16 AA cells: 8 went into the transmitter and 8 into the chassis. Kyosho probably uses 8 cells instead of the usual 6 to help combat the weight of the "hard" body and to help the Modena's smallish 370 motor build some extra power.

When I had finished ogling the chassis, I headed for the street and let the Modena roll. It accelerated smoothly and briskly with a little wheel-spin off the line, and though it won't set insane-speed-run records, it's definitely fast enough to be fun. Handling was a bit choppy because of the undamped front and rear friction shocks and the solid axle with T-plate setup in the rear. Add to that some pretty grippy tires, and you get a chassis that doesn't really like to be thrown into corners much. Run times were pretty good; they easily eclipsed the 20-minute mark with the NiMH cells I ran the car on.

Even though the @12 Modena uses bushings and not bearings, it ran tightly and smoothly even after several runs, so it should hold up well.

THE VERDICT

Kyosho has taken all of the popular features of its successful Mini-Z cars and expanded on them, both literally and figuratively. The @12 Sports Modena has the Mini-Z's ease of use and super scale looks but it's larger, so it can venture onto rougher surfaces that would leave smaller cars spinning their wheels. It's a beautiful model, fun to drive, and ready to go almost as quickly as you can get it out of the box. —*Elvis Machado*

factory options

- Screw kits (red/blue)—item nos. KYOC7232/KYOC7231
- Bearing set—KYOC7229
- X-Speed motor—KYOC7238
- S-tuned shock set—KYOC7241
- Shock shaft and S-tuned shock—KYOC7242

Kyosho @12 Sports Ferrari 360 Modena—KYOD49 (red), KYOD51 (yellow); \$150.

Kyosho; distributed by Great Planes Model Distributors (217) 398-6300; (800) 682-8948; kyosho.com. ■

Mtroniks Cirrus ESC

MTRONIKS OFFERS A WIDE RANGE OF ELECTRONIC SPEED CONTROLS. The top-of-the-line Cirrus is a forward-only, race-ready, programmable unit with a long list of features. It offers adjustable drive frequency, throttle curves, brake values and punch control—all giving tons of programming options. There is no motor limit, it operates on 5 to 10 cells without a receiver pack, and it's waterproof. The Cirrus occupies very little chassis space because it has a smaller than average footprint, and its case is actually an extruded-aluminum heat sink. It's small *and* cool!

FEATURES

- **Pushbutton setup.** The Cirrus requires only one push of the button to be adjusted to your transmitter. The same button programs the ESC, and four LEDs guide you along the way.
- **Adjustable drive frequency.** The Cirrus offers 8 frequency settings (1500 to 5000Hz) to optimize acceleration and current draw and minimize the motor's running temperature and commutator wear.
- **Adjustable throttle profiles.** There are 8 available throttle curves to suit almost any situation. The manual offers a simple graph of the curves, which go from tame to insane.
- **Adjustable punch control.** In addition to throttle curves, the Cirrus offers punch control, which adjusts throttle sensitivity around neutral, much like an exponential setting. Eight punch settings are available.
- **Adjustable brakes.** The Cirrus offers combinations of minimum brake values combined with deadband-on or deadband-off options. The minimum brake value can be set at zero, 20, 30, 40 or 50 percent of full brake. Think of deadband braking as brakes on at neutral: at setting 8, when you go from throttle-on to neutral, the ESC will apply 50-percent braking.
- **Minimum receiver voltage.** Even when the motor demands maximum amperage, full power is always supplied to your servo.
- **No motor limit.** No limit means no limit; use any brushed motor you like.
- **Waterproof case.** The waterproof acrylic and aluminum case ensures that a sudden downpour or a puddle won't ruin your speed control. If it gets wet, the Cirrus will shut down to protect its electronics.

TESTING

Installing the Cirrus requires a little planning and some soldering skill, as the power wires are not soldered to it for you. There are two power capacitors of different sizes; the smaller one must be used and soldered as close as possible to the posts on the speedo. The optional "M" power capacitor looks big enough to power the 18-inch subwoofer in my neighbor's Honda Civic. Mtroniks doesn't spell out its effect on performance and simply suggests that you experiment with it.

I installed the Mtroniks Cirrus in a Losi Triple-XS for testing. Initial setup takes about 20 seconds and could not be easier. Accessing the programming options and navigating through the values takes a little practice to master. For the first round of tests, I installed a Trinity P2k Pro Stock Racing motor and GP3300mAh battery packs. I experimented to find the ideal setting for the motor and my driving style, and the customized profile I ended up with made the car noticeably faster and easier to drive. A combination of more



The Cirrus is exceptionally small, and with its integrated heat-sink case, it runs very cool. The supersized capacitor is an option; you don't have to run it.

Manufacturer's specs

Input voltage	4.8 to 12
Motor limit	None
Rated current	50 amps continuous
BEC	5.8 volts/3 amps
Frequency	Adjustable 1500 to 5000Hz
Overload protection	Thermal
Dimensions	28x31x15.5mm
Weight	26g (w/out wires)
On resistance	0.5 milliohm

aggressive acceleration, a lower drive frequency and high punch made a noticeable difference with the stock motor and made the car

much snappier to drive without overpowering my setup. The Cirrus stayed very cool and rarely exceeded the ambient temperature.

Next, I dropped a Trinity Speed Gems Pro Cryptonite 9-turn into the Triple-XS. Changing the throttle profile really made a difference on low-bite surfaces. The car lost traction coming out of corners and spun out, so I changed to a throttle profile with a higher number (smoother acceleration) and could then keep on the throttle through corners and accelerate through them without losing traction.

I entered a low acceleration curve, a high punch number, a low frequency and a high brake value and made a few high-speed passes, accelerating and braking as hard as I could. I ran three battery packs through the car in this way. The Cirrus kept its cool, stayed within 20 degrees of the track temp and performed flawlessly.

THE VERDICT

With many programming possibilities to experiment with, the Mtroniks Cirrus ESC offers a profile that is right for your driving style, vehicle and track. It doesn't need a receiver pack for 4- to 10-cell operation, and there's no motor limit, so the Cirrus will work with almost any electric car or truck out there. The ESC never overheated during my tests, and that's a good sign that this baby will last a long, long time. And if anything does go wrong, Mtroniks offers a two-year warranty.

The Mtroniks Cirrus is a versatile, race-ready ESC that offers easy-to-use, flexible programming and outstanding, trouble-free performance in a small, waterproof package. I would put the Cirrus head to head with any other top-level ESC. —Craig Bianco

Cirrus ESC—05521; \$160.

Mtroniks; distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com. ■

MIP Monster GT CVDs and 2-N-1 clutch

ASSOCIATED'S MONSTER GT IS THE LATEST VEHICLE to get the hop-up treatment from MIP. There's a set of CVD axles for the big rig (no surprise there) and a 2-N-1 clutch to help get the power into the CVDs. I gave my MGT the full MIP treatment.

MONSTER GT CVDs

MIP offers two CVD kits for the Monster GT. Set no. 1580 replaces the front or rear pair of drive axles (they're identical), so you'll need to buy two 1580s if you want a complete set of MIP CVD drive axles. The 1581 set replaces the center dogbones that join the transmission to the front and rear gearboxes.

The CVDs come with a detailed instruction sheet, grease, thread-lock and a hex wrench to use during assembly, which is simple. Slightly grease the parts that make up the universal joint, and slide them into place. Be sure not to get any grease on the threads inside the joint, or the thread-lock that holds the setscrew in place won't be able to do its job. Apply a little thread-lock to the setscrew that holds everything together, and install the CVDs. When the assembly is complete, put a little more grease into the joint and wipe off the excess.

It didn't take very long to install the parts on my MGT. The most time-consuming part was installing the center drive CVDs, but only because I had to remove the transmission. Installing the axles required that I pull out one of the inner hinge pins so I'd be able to move the suspension arms out of the way and access the axles. Don't forget to remove the wheel hex as well as the drive pin so that you'll be able to pull the axle through the hub. Put a fair amount of thread-lock on the setscrews that hold the ends of the CVDs in place.

I thrashed on the MGT for a couple of tanks of fuel, and the CVDs held up well and operated smoothly. MIP does have rebuild kits for the universals but I don't see these things wearing out anytime soon.

MONSTER GT 2-N-1 CLUTCH

When you pick up the package, you'll see that MIP includes a new flywheel, a 2-shoe clutch and two clutch springs (both springs are used simultaneously). Just like the CVDs', the instructions are excellent; they explain how the clutch works and make installation easy. The flywheel is considerably heavier than the stock flywheel, and that will smooth out the engine at idle. If you look at the two clutch shoes, you'll notice that they have two holes. Which hole you use will determine how the clutch engages with the clutch bell. Use the outside hole, and most of the clutch shoe will make contact with the clutch bell, and it will engage earlier; if you mount the clutch shoe using the inside hole, less of the shoe will contact the clutch bell, and it will engage later. You want the clutch to engage early when you race on a loose surface and later when you run on a high-bite surface.

To test the clutch, I first set it at the heavy setting. The truck felt good when it left the line and showed very little tire slip. It was also very easy to control coming out of the track's corners. I like to roll on the throttle when exiting turns, and the clutch felt as if it was engaged as soon as I touched the trigger. Once I felt I had a feel for the "heavy" setting, I tried the "light" setting. Now, once the clutch was engaged, the truck shot off the line because it engages later when the engine makes more power. I got on the trigger a little earlier when exiting the turns to make up for that slight lag. —Kevin Hetmanski



The CVD axles are sold in pairs, and you'll need two sets to fully outfit a Monster GT. The CVD center shafts are sold as a pair, and you need only one pair.



No; MIP doesn't include a spare clutch spring; both will be installed on the clutch. This shot gives a good view of the nicely machined flywheel and the shoes' extra mounting holes.



- Front/rear shiny CVD MGT kit (2 needed)—1580; \$54.
- Center shiny CVD MGT kit—1581; \$54.
- 2-N-1 clutch/flywheel MGT kit—1588; \$23.

MIP (626) 339-9007; miponline.com. ■

FAST \$400

SOURCES

DYNAMITE distributed by Horizon Hobby (800) 338-4639; dynamite.com.
ACE HOBBY DISTRIBUTORS INC. (949) 833-0088; acehobby.com.
AIRTRONICS (714) 978-1895; airtronics.net.
DURATRAX distributed by Great Planes; duratrax.com.
DURATRAX/O'DONNELL distributed by Great Planes Model Distributors; duratrax.com.
DYNAMITE distributed by Horizon Hobby.
EPIC a product of Team Trinity (732) 635-1600; teamtrinity.com.
FOX MFG. (501) 646-1656; foxmanufacturing.com.
FUTABA distributed exclusively by Great Planes; futaba-rc.com.
GLOBAL HOBBY DISTRIBUTORS (714) 964-0827; globalhobby.com.
GREAT PLANES MODEL DISTRIBUTORS (217) 398-6300; (800) 682-8948; greatplanes.com.
HITEC RCD INC. (858) 748-6948; hitecrdc.com.
HOBBICO distributed by Great Planes; hobico.com.
HORIZON HOBBY INC. (800) 338-4639; horizonhobby.com.
HPI RACING (949) 753-1099; hpiracing.com.
LRP distributed by Team Associated.
MODEL RECTIFIER CORP. (MRC) (732) 225-2100; modelrectifier.com.
NOVAK ELECTRONICS INC. (949) 833-8873; teamnovak.com.
O'DONNELL see DuraTrax/O'Donnell.
OFNA RACING (949) 586-2910; ofna.com.
O.S. ENGINES distributed by Great Planes; osengines.com.
PRO-LINE (909) 849-9781; pro-lineracing.com.
PRO-MAX distributed by Global Hobby Distributors.
REEDY a division of Team Associated.
SEWINDERS FUELS distributed by Morgan Fuel (800) 633-7556 (334) 347-3525; morganfuel.com.
TAMIYA AMERICA INC. (800) 826-4922; tamia.com.
TEAM ASSOCIATED (714) 850-9342; teamassociated.com; rc10.com.
TEAM LOSI distributed by Horizon Hobby Inc.; teamlosi.com.
TRAXXAS (888) 872-9972; traxxas.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.
VENOM RACING (800) 705-0620; venom-racing.com.
XTM RACING distributed by Global Hobby Distributors.

customer service

For fast service, go to: www.rccaraction.com and select "Customer Service"

All of the following services are available online!

- › Subscribe
- › Change your address
- › Report missing or damaged issues
- › Make payments
- › Check your account status
- › Renew your subscription

How to read your label:

#BXNBNMG *****AUTO** 3-DIGIT 068
 #12345ABC123AB12C#70411 AUG 05

Your account number is 12345ABC123AB12C.
 Your expiration date issue is August 2005.

Address changes

Please allow 4-6 weeks for address changes to be processed. To change your address by mail, send a copy of your current label and your new address information to:

RC Car Action
 P.O. Box 420235
 Palm Coast, FL 32142-0235 USA

You can also contact us at
rccaraction@palmcoastd.com,
 (386) 246-3323,
 fax (386) 447-2321.
 For faster service, go online.

Our cancellation policy

All cancellations must be requested in writing. You may send your request via mail, email, or fax.

Our renewal policy

We will send you a renewal notice 4 months prior to your subscription's expiration date. For faster service, renew online at www.rccaraction.com

car action

RC Car Racing Distributor Dealers Only!!



ERI
associates inc

50 North Harrison Ave, unit 14, Congers, NY, 10920
 Model Car Racing Distributor, We do not sell retail!
 Phone 845 268 5090, Fax 845 268 0462,
 E Mail ERIdist@aol.com

Venom Tires & New Speedmeter

Hakko Soldering Station

Revo Motor Savers

THS NEW for 2.5 Maxx

Tamiya

REVO

CEN .46 Genesis

Associated RC18T RTR

Novak GTX Speed Control

Robinson Steel Savage Gears

Revo .21/.23 Engine Conversions / LST & Genesis Hop Ups

Integy Savage & MGT Piggyback Shocks

Megatech RTR Dragster

Golden Horizons Monster GT Head

Hot Bodies Lightning Stadium Pro RTR

Team Orion .26/.28 Wasp & .21 small block

.23 Maxx Sirio

SERPENT 950A

Team Orion Revolution Modifieds

Trinity Itsey bitsey 1/18 RTR

The Original RC SCREW2

Integy & MRC Chargers

Hudy Tire Machine

Maximizer

Beadlock Rims

SAVAGE 25

Sorry, No Retail Sales! Dealers only!!

Novak GTX Speed Control

Robinson Steel Savage Gears

Revo .21/.23 Engine Conversions / LST & Genesis Hop Ups

Integy Savage & MGT Piggyback Shocks

Megatech RTR Dragster

Golden Horizons Monster GT Head

Hot Bodies Lightning Stadium Pro RTR

Team Orion .26/.28 Wasp & .21 small block

.23 Maxx Sirio

SERPENT 950A

RS Tires

Integy

Airtronics

Alien

Associated

Autographics

Bolink

BRP

Can

CRC (Calandra)

C&M (Cobra)

Comp. Elect

Cutting Edge

CVEG

Dans

Dubro

Duracomm

EPIC

Fantom

Golden Horizons

Hakko

Hardcore

Hot Bodies

HPI

Hudy

Imex

Jackal

Kimbrough

LRP

Lunford

Megatech

MIP

Motor Saver

MRC

New Era

Novak

Orma

Pactra

Paragon

Parmis

Pole Position

Powerline

Pro-Line

Protoform

RCMG

RC Screwz

Race Prep

Racers Choice

Racers Edge

Raceway Mfg

Ram

Robinson

Rossi

RPM

SVM Crono

Serpent

Shock Socks

Siro

Sirox

TA Emerald

Tamiya

Team Orion

Teddy's

THS

Traxxas

Trinity

TRC

Weller

Wife

Wolfe

W.S. Deans

X-Ray

Yokomo

Plus More!

PRO-LINE TRACK DIRECTORY

YOUR 2005 TRACK GUIDE

FREE! Track owners! You can be included in this directory brought to you by Pro-Line. Just fill out the coupon on page 347 or go to www.rccaraction.com/info/trackentry.asp. Additional track listings may be found online at www.rccaraction.com/info/rctrack_srch.asp.

ALABAMA

Hobby Raceway, Tuscaloosa, Alabama 35405; Tony Brothers, 205-339-4950; email: gotjuice@comcast.net



Mobile Miniature Speedway, Theodore, Alabama 36582; Richard Sweetser, 251-653-6643; email: jbogard@comcast.net; web: mywebpages.comcast.net/jbogard



North Cullman Raceway, Cullman, Alabama 35055; Daniel Lollies, 256-775-2491; email: cullmanrchoobbies@yahoo.com; web: www.cullmanrchoobbies.homestead.com



Oak Mountain Hobbies, Pelham, Alabama 35124; Jay Simpson or Charles Rosato, (205) 685-8980; email: jsimp@oakmtnhobbies.com; web: www.oakmtnhobbies.com



ARIZONA

HobbyTown Raceway--Tucson AZ, Tucson, Arizona 85713; Jay, (520) 882-8888; web: www.hobbytown.com



HobbyTown U.S.A.--Phoenix AZ, Phoenix, Arizona 85044; Doug McFarland, (480) 598-5282



R/C Sports Mania Raceway, Phoenix, Arizona 85017; Mike Lubanovich, (602) 278-3671; email: info@rcsportsmania.com; web: www.rcsportsmania.com



Scottsdale R/C Raceway, Scottsdale, Arizona 85251; Scott Anfinson, 480-945-2186



ARKANSAS

Alison Off-Road RC Raceway, Little Rock, Arkansas 72206; Steve Alison, (501) 490-1227; email: otto@alisonoffroad.com; web: www.alisonoffroad.com



GS Hobby, Ft. Smith, Arkansas 72901; Bryon Shumate, (501) 648-1994; web: www.gshobby.com

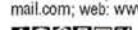


Sparks R.C. Raceway, Paragould, Arkansas 72450; Tommy Sparks, (870) 239-3606



CALIFORNIA

Capital City R/C, Sacramento, California 95829; James Patterson, 916-383-3445; email: capitalrc@hotmail.com; web: www.capitalrc.com



Castle Hobbies, San Jose, California 95124; Steve Scott, 408-377-3771; web: www.castlehobbies.com



Crystal Park Raceway, Compton, California 90202-4925; James Reese, 310-631-0307; email: [info@crystalparkraceway.com](mailto:mailto:info@crystalparkraceway.com)



Delta R/C Raceway & Hobbyshop, Antioch, California 94509; Rick or Steve, (925) 778-2965; web: www.deltarc.com



Extreme RPM Hobbies, Grand Terrace, California 92313; Bobby Haney, 909-370-3379; email: Extremepmrace@aol.com; web: www.ExtremeRpmRacing.com



Hobby Central Raceway, Poway, California 92064; Lee, (858) 513-0373; web: www.hobby101.com



Hobby World, San Jose, California 95129; Guy Bassett, (408) 873-2109



Hot Rod Hobbies, San Jose, California 95135; Jimmy Babcock, (661) 255-2404



Jake's Performance Hobbies, Rohnert Park, California 94928; Jake, (707) 586-3375; email: jphracing001@aol.com; web: jphracing.com



Palm Desert Off-Road R/C Raceway, Palm Desert, California 92260; Bob Barrett, 760-341-5699; email: htu-palmdesert@msn.com; web: www.hobbytown.com



Paradise Hobbies & RC Raceway, Paradise, California 95969; David Lafabregue, (530) 877-6447; email: paradisehobbies@aol.com; web: www.paradisehobbies.com



Pure Adrenaline RC & Hobby, Sonoma, California 95370; Matt, (209) 536-6232; email: contact@pahobby.com; web: www.pahobby.com



Racer's Haven Raceway, Bakersfield, California 93309; Greg Cooper, 661-835-0441; web: www.racers-haven.com



Rescue Mini R/C Speedway, Rescue, California 95672; Bruce Pease, (530) 621-3948; web: www.innercite.com/~rcracing/



Ripon R/C Speedway, Ripon, California 95366; Dan Tanis, (209) 599-5160



Sacramento RC Racing & Hobbies, Sacramento, California 95824; Andreas Muller, (916) 424-4001; email: andreas123@earthlink.net; web: www.77sunset.com



Showtime R/C Speedway, Bakersfield, California 93301; Don Risner, 661-328-1481; email: showtimespeedway@aol.com; web: www.showtime-speedway.com



So Cal R/C Raceway, Huntington Beach, California 92646; Jim or Lana, 714-963-7484; email: info@socalrc.com; web: www.socalrc.com



SpeedWorld Raceway, Roseville, California 95678; Billy Bowerman, 916-783-8864; email: speeddog@mindsync.com; web: speedworldraceway.com



The Dirt Valley R/C Racepark, Hemet, California 92544; Joe Christenson, (909) 925-7592



Ventura RoadRunners, Camarillo, California 93010, 805-564-4144; email: dudebigal@aol.com; web: www.venturaroadrunners.com



COLORADO

MHOR R/C Raceway, Aurora, Colorado 80011; Jess A. Brockman, (303)343-0151; email: questions@mhorrcc.com; web: www.mhorrcc.com



Valley West Off-Road RC Club, Grand Junction, Colorado 81504; Jodie Grein, 970-242-1412; email: geerhed@gj.net; web: www.gj.net/~geerhed/vworc.html



CONNECTICUT

K&N R/C Speedway Inc., Stafford Springs, Connecticut 06076; Jim or Bill, (860) 684-9896



Manchester Hobbies, Manchester, Connecticut 06040; Jim or Mike Tierini, (860) 643-4768



R/C Madness, Enfield, Connecticut 06082; Christopher Marcy, (860) 741-6501; email: cmarcy@rcmadness.com; web: www.rcmadness.com



SpeedZone Raceway, Cromwell, Connecticut 06416; David Kahn, 860-632-9278; email: info@speedzone-hobbies.com; web: www.speedzone-hobbies.com



Xtreme Radio Control, New Milford, Connecticut 06776; Paul or Pete, (860) 354-4703



DELAWARE

ESRC, Seaford, Delaware 19973; Bill Auchterlonie, 302-734-2757/302-629; email: aeromarine@erols.com



FLORIDA

B&T RC Central, Fort Walton Beach, Florida 32547; Tim, 850-863-1666



Daytona/Strickland RC Park, Holly Hill, Florida 32174; Mike Wichman, 386-677-0898; email: moxnicht@aol.com



Farmers Hobby Shop & Raceway, Tampa, Florida 33619; Greg Cardone, 813-248-3314; web: www.farmers-hobby.com



First Coast Speedway, Jacksonville, Florida 32211; Bobby Phillips, 904-716-8861; web: www.firstcoastautotrac.com



G&C Hobby Raceway, Lantana, Florida 33462; George, 561-547-3812; email: gnchobbies2@cs.com; web: www.gnchobbies.com



GB's Hobbies, Port St. Lucie, Florida 34952; Track Owner, 561-460-2844; email: qaircrt@bellsouth.net



Grand Prix RC-Club, Ft. Pierce, Florida 34945; Luther Peterson, 772-473-2130; email: grandprixhobbies@aol.com; web: www.grandprixhobbies.com



Hobby Central, Pensacola, Florida 32504; Bill McLester, 850-471-9800; email: info@hobbycentralrc.com; web: www.hobbycentralrc.com



Hobby World Raceway, Jacksonville, Florida 32210; Greg, (904) 772-9022



Kissimmee R/C Auto Racing, Kissimmee, Florida 34741; John Rosser, (407) 944-4913; email: john@craftworldflorida.com; web: www.craftworldflorida.com



Miami RC Raceway, Miami, Florida 33176; Mickey Cerra, (305) 630-3714; email: miamircraceway@aol.com



Minnreg R/C Club, Largo, Florida 33773; Sam Ledford, 727-403-7110; email: sledford@tampabay.rr.com; web: www.minnregcc.com



Monza R/C Speedway, Miami, Florida; Ed Delgado, (305) 437-9895



Morris Kohl's Raceway and Hobby Shop, Tampa, Florida 33604; Morris Kohl, (813) 931-1626



My Rose Hobbies & Crafts, Jupiter, Florida 33458; Mark Watson, (561) 744-3800



NORRA, Naples, Florida 34104; Rob Dondorfer, 239-417-1099; web: www.norra.mainpage.net



Pro Hobbies Speedway, Apopka, Florida 32712; Jim, (407) 886-4615; email: prohobby@juno.com



Sarasota RC Speedway, University Park, Florida 34201; Jim Wilson, (841) 358-7047



South Palm Beach Racers, Boca Raton, Florida 33488; Mike Fazio, 561-338-5367; email: epine01@bellsouth.net; web: <http://communitylink.gopbi.com/group/s/pbrcub>



Superior Hobbies R/C Parking Lot Racing, Casselberry, Florida 32707; (407) 834-9299; email: racing@superiorhobbies.com; web: www.superiorhobbies.com



SWF RC Car Club, Fort Myers, Florida 33908; Hobby House of Ft. Myers, 239-415-0033; email: hobbyhouseofftmyers@msn.com



Tallahassee R/C Speedway, Tallahassee, Florida 32301; Tim Cook, 850-514-3365; email: idotthre@hotmail.com; web: www.tallahasseeirc.com



Tampa R/C Raceway, Seffner, Florida 33584; Carole Raimondi, 813-655-6886; email: carolehobbytown@aol.com



Treasure Coast R/C Club, Palm City, Florida 34984; Doug Goethel, 772-283-2260; email: 1nngo@adelphia.net



West Coast R/C Club, Lutz, Florida 33549; Jim Larrimore, 813-368-4962



GEORGIA

Augusta R/C Racer's Club, Augusta, Georgia 30909; Darren, 706-860-5608; web: augusta.rc.freehomepage.com



KEY TO SYMBOLS

	Indoor		Concrete
	Outdoor		Asphalt
	Off-road		Minis & Micros
	On-road		On-site hobby shop
	Oval		AC power
	Dirt oval		Auto lap counting
	Carpet		Food available

Dalton Motorsports, Dalton, Georgia 30721; Keith Manton, 706-226-6699; email: dms@dalton.net



Echeconnee Superspeedway, Macon, Georgia 31216; Clifford Kline, 478-256-2032; email: gtock1000@aol.com



Hobby Town Raceway, Columbus, Georgia 31909; Frank Bastos, (706) 660-1793; email: fbastos@mindspring.com; web: www.hobbytown.com



Primitime Raceway, Calhoun, Georgia 30701; Tommy Jackson, 706-625-9037; email: primitimehobby@gccinternet.net; web: primitimehobby@gccinternet.net



SCORE-Phil Hurd Raceway, Savannah, Georgia 31406; Dana Franklin, Club President, 912-308-8545; email: bonescom@bellsouth.net; web: www.score-racing.org



The Flight Box Hobby Shop, Rome, Georgia 30161-6826; Leslie Duke, (706)-234-3014



HAWAII

A.S.I. Racing, Kapaa, Kauai, Hawaii 96746; Arnold Morales, 808-821-8132



Radio Control Assoc./Alaa Park Raceway, Pearl City, Hawaii 96782; Ace R/C Products, (808) 456-1279

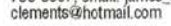


Sandy Flemings, Pearl City, Hawaii 96782; Dave Caldwell, 808-456-7272; email: info@formula1-rc.com; web: www.formula1-rc.com



IDAHO

Almosa Ranch R.C.s, Twin Falls, Idaho 83301; Casey Clements, (208) 733-8667; email: james_casey_clements@hotmail.com



Capital Dirt Burners, Boise, Idaho 83702; Jeff Mills, 208-376-8932; email: jeffmills928@msn.com; web: www.capitaldirtburners.com



DM Raceway, Pocatello, Idaho 83201; Mike Buffaloe, 208-233-8163; email: mikes@dmraceway.com; web: www.dmraceway.com



ILLINOIS

AJS Raceway & Hobby, Dekalb, Illinois 60115; AJ, 815-756-2772; web: www.ajsraceway.com



C&R Hobbies, Milford, Illinois 60953; Ray Craighead, 815-889-4073; email: thomas@milnet.net



C.I.R.A., Jacksonville, Illinois 62650; Randy Tendick - Sport-N-Hobby, (217) 245-1375; web: http://www.geocities.com/jaxcirca/



His N Hers Hobbies Raceway, Bloomington, Illinois 61701; Kevin Turek, 309-827-0204; email: hisnherhobbies@aol.com; web: www.hisnherhobbies.com



HobbyTown USA - Oak Park, IL, Oak Park, Illinois 60301; Mark or Fred, (708) 445-8056; email: htuopi@aol.com



Machesney Park Raceway, Machesney Park, Illinois 61115; Gina, (815) 282-1311; email: mpr30@aol.com; web: www.mpr30.homestead.com



Monie R/C Raceway, Monie, Illinois 60449; Roy or Roberta Moody, (708) 534-2422



Venture Raceways, Libertyville, Illinois 60048, (847) 549-6963



INDIANA

Bremen Racing Ent., Bremen, Indiana 46506; Dale Heuberger, 219-546-3807



Duneland Hobbies & Raceway, Portage, Indiana 46368; Ron, 219-763-1610; email: RTrobaugh1@aol.com; web: www.dunelandhobbies.com



Hobby Barn Raceway, Terre Haute, Indiana 47902-9694, (812) 299-5773



Madison Funwheelers Carpel Oval, Madison, Indiana 47250; Charlie Hatchel, 1-812-866-8930



Pete Russell's R/C Speedway, Elkhart, Indiana 46516; Pete Russell, 574-293-1827



R/C World of Indiana, Lynn, Indiana 47355; Joe Kolp, (765) 874-2464; email: rcworld@rcworld.com; web: www.rcworld.com



RC Barn, Monroe, Indiana 46772; Mark Lengerich, (219) 692-6600; email: bigdaddy@adamswells.com; web: www.rcbarn.com



RCRCR Raceway, Boonville, Indiana 47601; Scott Payton, 812-573-6087; email: email@rcrcr.com; web: www.rcrcr.com



Schoolyard RC Speedway, Lagrange, Indiana 46761; David W. Bryan, 260-463-3598; email: dwbryan@loci.net; web: www.rcspeedway.net



Showtime Lol Racing, Fort Wayne, Indiana 46819; Mike Romines, (219) 478-6099; web: fortwaynecrpark.tripod.com



IOWA

Ames Radio Control Speed Assoc., Ames, Iowa 50014; Ryan Davis/Brad Scandrett, 515-231-3613/515-432; email: Davismotors@aol.com



Dubuque R/C Speedway, Dubuque, Iowa 52002; Craig Schmal, 563-587-0218; email: rcraig7@aol.com; web: www.geocities.com/obqrc



Hobby Haven, Urbandale, Iowa 50322; Rick Marble, (515) 276-8785; web: www.hobbyhaven.com



Independence, Independence, Iowa 50644; Eugene Bachman, 319-266-3857; email: BachmanE2@hotmail.com



Iowa City R/C Racing Association, Iowa City, Iowa 52240; Hobby Corner, (319) 338-1788



IROAR-Vinton Raceway @ Vinton Roller Rink, Cedar Rapids, Iowa 52402; Ed Karr, 319-362-1291; email: boxkarhobby@aol.com



Manly R/C Club, Manly, Iowa 50456; Bruce Hill, (641) 454-2025



Marble's Raceway, Des Moines, Iowa 50317; Rick Marble, (515) 262-7507



Radio Control Raceway Park, Fort Dodge, Iowa 50501; Bernie Halverson, (515) 576-3780; email: bernie@fronternet.net



RiverFront Speedway, Fort Dodge, Iowa 50501; Bernie Halverson, 515-576-3780 (515-57); email: bhalverson@codgenet.com



Wild Bill's Raceway, Knoxville, Iowa 50138; William Anderson, Jr., 641-842-5973; email: wildbill@iowatele.com.net; web: www.wildbillsracing.com



KANSAS

D&B Raceway, Menlo, Kansas; Ron Ball, (785) 855-2370



KENTUCKY

Coyote Raceway, Lexington, Kentucky 40505; Steve M., 859-253-9330; email: coyoterace1@hotmail.com; web: www.coyoteraceway.com



Dixon's R/C RaceWay, Hazard, Kentucky 41701; Jeff Dixon, (606) 436-4820; email: jeffdr1@hotmail.com



Mayking R/C Speedway, Mayking, Kentucky 41837; Jon Fields, 606-633-4700; email: jon1@se-tel.com



Pit Stop Hobbies, Paducah, Kentucky 42003; Robert or Rodney, 270-443-0052; email: pitstop1@apex.net



R.C. WOW, Falmouth, Kentucky 41040; John P. Jones, (859) 654-1700; email: rcwow@fuse.net; web: www.rcwow.com



Trio Hobbies & R/C, Radcliff, Kentucky 41060; Maurice Johnson, (502) 351-7547

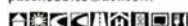


Wildcat Speedway, Nicholasville, Kentucky; David Bowles, 859-272-0231



LOUISIANA

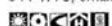
Fast Pace Hobbies, Alexandria, Louisiana 71301; Joseph or Casey Toralba, 318-561-2070; email: fastpacehobbies@aol.com



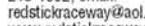
Gator R/C Raceway, Moss Bluff, Louisiana 70612; Tony Diaz, 337-855-3206; email: keithsja@aol.com; web: homepage.mac.com/kmaples/



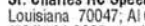
Hwy. 44 Hobby Shop, Gonzales, Louisiana 70737; Eric Olmstead, (225) 644-1773; email: eric209@aol.com



Red Slick R/C Raceway, Baton Rouge, Louisiana 70814; Michael Pino, 225-218-1002; email: redstickraceway@aol.com; web: www.redstickraceway.com



St. Charles RC Speedway, Destrehan, Louisiana 70047; Al Cazalot, (504)764-0625; email: stcharlesracer@home.com; web: members.home.net/stcharlesracer



MAINE

Central Maine R/C Speedway & Hobbies, Fairfield, Maine 04963; David Prescott, (207) 453-4588; email: rcrcer@mint.net



Clay Bowl R/C Hobbies, Greene, Maine 04236; Pat Cap, (207) 946-5003



MARYLAND

Coles Race Way, Waldorf, Maryland 20602; Cole Brinfield, (301) 843-1386; email: kbbrinfield@cs.com



GPA Hobbies, Crofton, Maryland 21114, 301-858-0004



HobbyTown USA--Glen Burnie MD, Glen Burnie, Maryland 21061; David Parkison, 410-590-4950; email: racing@mdhobbytown.com; web: mdhobbytown.com



The Track, Gaithersburg, Maryland 20877; Mimi Wong, (301) 417-9630; email: mimitrtrack@yahoo.com; web: www.rctrack.com



Trifecta Hobbies, Prince Frederick, Maryland 20678; George or Mike, 410-414-9000; email: gmitchell@trifectahobbies.com; web: trifectahobbies.com

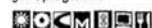


MASSACHUSETTS

Big Boys Toys, Fall River, Massachusetts 02723; Track Owner, 508-677-9400



East Templeton Model Raceway, Templeton, Massachusetts 01468; Keith Anderson, 1-978-632-1619; email: keith@glowplug.com; web: glowplug.com



Hi-Tech Hobbies, Raynham, Massachusetts; Ruben, (508) 880-5373



Megadrome Raceway, North Adams, Massachusetts 01247; Bob Blanchette, 413-743-7223



Northboro Speedway, Northboro, Massachusetts 01532; Bob Trimble, 508-393-8087



R/C Excitement, Inc., Worcester, Massachusetts 01606; Todd Anderson, 508-853-3272; email: rcexcitement@aol.com; web: www.rcexcitement.com



RPM RC Raceway, Abington, Massachusetts 02351; Richard Tonetti, 781-857-1177; email: rpmrc@yahoo.com; web: www.rpmrc.com



MICHIGAN

D.R. R/C, Taylor, Michigan 48180; Bobby or Fred, (734) 287-7405; web: www.downriversracing.com



Dirt Burner Racing, Commerce, Michigan 48390; Bill, 248-926-1140; web: www.dirtburnerracing.com



E.U.P., Kincheloe, Michigan 49788; Joel Wiggins, 906-495-3503



Fastraxx, Brownstown, Michigan 48173; Greg Yingling, (734) 379-8980; email: fast33@hotmail.com



Great Lakes Racers Club, Grand Rapids, Michigan 49585; John Warner, 616-838-2231; email: Gr8LksRacers@aol.com; web: www.rogers3.com/gllrc/



Hideaway Raceway, Napoleon, Michigan 48021; David Carlisle, 1-517-536-8821; email: adcarlisle1@netscape.net



Jons Hobby, Mt. Pleasant, Michigan 48858; Jon Beutler, 989-773-5412; email: jonshobby@earthlink.net; web: www.jonshobby.com



JT Superspeedway, Battle Creek, Michigan 49015; Jerry or Sam, 616-965-0116



Larry's Performance RC Carpet Track, Sterling Heights, Michigan 48314; Larry, 586-997-4840; email: lprcs@qwest.net



Lazer RC Speedway, Adrian, Michigan 49221; Russ Johnson, (517) 263-2806



N.M.R.C.C. Speedway, Gaylord, Michigan 49735; Gabe, (989) 732-3963; email: hobby-toy@voyager.net



R&L Hobbies & Racing, Portage, Michigan 49002; Rex Simpson, (616) 323-3686; web: www.rlhobbies.com



R.A.C.E. Inc., Jackson, Michigan 49203; Sam Sprang, (517) 787-9161



Raw Roots Race Tracks, West Olive, Michigan 49460; Roy Bennink, (616) 399-9338; email: rstb@tm.net



Village Hobbies, Hesperia, Michigan 49421; Al Deater, 231-854-6866; email: vhobbies@hotmail.com; web: vhobbies@tdats.net



Village R/C Raceway, Decatur, Michigan 49045; Chuck Nolke, (616) 423-7878



MINNESOTA

Country R/C Raceway Park, Belview, Minnesota 56214-8115; Charles L. Steffi, 507-641-8115



J's Radio Control Race Park, Starbuck, Minnesota 56381; Jay Campbell, (320) 239-4827



Kevin's Off-Road Raceway, Crookston, Minnesota 56716-2317; Kevin Altepeter, (218) 281-7523; email: kevin@krcproducts.com; web: www.krcproducts.com



National Speedway, Fridley, Minnesota 55432; Steve Hedenland, 763-571-9283; email: mrtip@nationalhobby.com; web: www.nationalhobby.com



Northwoods Hobby Raceway, Brainerd, Minnesota 56401; John or Doug, (218) 829-9257



Twin Cities Hobby & Raceway, Brooklyn Park, Minnesota 55428; Mark O'Brien/Ray Cook, (763)315-8700; email: woodluster@msn.com; web: www.twincityhobby.com



MISSISSIPPI

Meridian RC Speedway, Meridian, Mississippi 39302; Joe or Pearce, 601-483-7000



Small Cars Unlimited, Jackson, Mississippi 39212; Ed Hill, 601-372-3278; email: fast@smallcarsunlimited.com; web: www.smallcarsunlimited.com



X-Treme RC, Saucier, Mississippi 39574; Marty Capers, (228) 539-2004



MISSOURI

B&L Hobbies & Raceway, Park Hills, Missouri 63061; Bob Marler, (573) 431-9444; web: www.bandlhobbies.com



Fastlane Raceway & Hobbies, Blue Springs, Missouri 64015; Shane & Randy, (816)220-0100; email: info@fastlanehobby.com; web: www.fastlanehobby.com



Hobbies In Motion Raceway, Springfield, Missouri 65803; Matthew Froning, 417-886-9621; email: mfroning@hobbiesinmotion.com; web: www.hobbiesinmotion.com

NEBRASKA

North Missouri Raceway, Chillicothe, Missouri 64601; Billy Johnston, (660) 646-1120

NOVOTY R/C RACEWAY & HOBBIES

Novelty, Missouri 63460; Rex & Jena Franke, 660-739-4530; email: noveltyrc@noveltyrc.com; web: www.noveltyrc.com

OZARKS R/C RACEWAY

Springfield, Missouri 65803; Gene Rhodes, 417-873-9350 (Track); email: OzarksRaceway@aol.com

RCTRAX RACING CLUB OF CENTRAL MISSOURI

Hallsville, Missouri 65255; Gary Phillippe, 573-442-8183; email: philipp14@verizon.net

REAL BLUE VUE R/C

Kansas City, Missouri 64133; Steve Hale, (816) 358-0238; email: hrealrc@aol.com; web: www.geocities.com/real_rc_raceway

REAL R/C RACEWAY

Pleasant Hill, Missouri 64080; Steve Hale, (816) 540-5584; email: hrealrc@aol.com; web: www.real-rc.com

SHOWTIME SPEEDWAY

Bakersfield, Missouri; Don Risner, (601) 203-1481

MONTANA

Garden City R/C Speedway, Missoula, Montana 59801; Brian Culp, (406) 549-7992; email: gardencityrc@msn.com

MAGIC CITY RACERS

Billings, Montana 59102; Bryan Grummett, 406-656-8266; email: jsaves@tgrsolution.net; web: www.magiccityrc.com

RC OFFROAD ASSOCIATION OF RACING (ROAR)

Libby, Montana 59923; Jamie, 406-293-6506; email: shark-boyet@hotmail.com

NEBRASKA

Hadar R/C Raceway, Norfolk, Nebraska 68701; John Schoenauer, (402) 644-7922

HOBBY TOWN RACEWAY

Lincoln, Nebraska 68505; Chris or Chad, 402-434-5056; email: eaststore@aol.com

HOBBY TOWN USA RACEWAY PARK

Lincoln, Nebraska 68508; Chad or Chris, 402-434-5056; email: eaststore@aol.com

NEBRASKA

NESCAR Raceway, Grand Island, Nebraska 68801; Steve Blayney, (308) 382-0920; email: blayneyracing@hotmail.com

O.N.R.O.A.D.

Omaha, Nebraska 68104; CoRK Jacobs, (402) 556-8674

OTWG CARPET RACEWAY

Norfolk, Nebraska 68701; John Schoenauer, (402) 644-7922

THE SALVATION ARMY SPEEDWAY

Omaha, Nebraska 68164, 402-734-3414

NEBRASKA

NEVADA

1st Place Raceway, Fallon, Nevada 89406; Stan Lattin, 775-867-3357; email: info@1stplace.com; web: www.1stPlaceRace.com

DANSEY'S INDOOR R/C & HOBBIES

Las Vegas, Nevada; David Lugo, (702) 453-RACE or (8) web: www.danseys.com

LAS VEGAS R/C RACEWAY

Las Vegas, Nevada 89139; Patrick Quinn, 702-365-1396; email: patrickquinn8@lvc.com; web: www.lasvegasrcraceway.com

T-Rix bikes & R-C shop

Elko, Nevada 89801; Gary Perkins, (775) 777-8804; email: ntnman14@hotmail.com

NEBRASKA

NEW HAMPSHIRE

Hill Top R/C, Troy, New Hampshire 03465; Pete Bastoni/Jim MacPherson, 603-242-3222; email: hilltoprc@netryders.com; web: www.hilltoprc.com

LAKES REGION R/C SPEEDWAY

Gilford, New Hampshire 03246; Louie Blais, 603-524-2909; email: racing@lakesregionrc.com; web: www.lakesregionrc.com

RT 106 RACEPARK

Pembroke, New Hampshire 03275; David Daniels, 603-224-7223; email: david@collectracing.com; web: www.106racepark.com

NEBRASKA

NEW JERSEY

America's Hobby Center Inc., North Bergen, New Jersey 07047; John Many, (201) 662-0777; web: www.ahc1931.com

BACK TRACK RACEWAY

Hammonton, New Jersey 08037; Bob W., 609-214-5016

CHECKERBOARD RACEWAYS

Elwood, New Jersey 08217; Ray Murray, 856-629-9413; email: RaysTrack@webtv.net

NEBRASKA

Family Hobbies Raceway, Vineland, New Jersey 08360; Linda Vogel, 856-696-5790; email: familyhobbies@yahoo.com; web: familyhobbiesraceway.com

JACKSON RC CLUB

Jackson, New Jersey 08527; Al Sardino, 908-770-7621; email: njegeguy@jacksonrccracing.com; web: www.jacksonrccracing.com

JEFFERSON SPEEDWAY

Oak Ridge, New Jersey 07438; Jim, (973) 697-7525

MILLVILLE R/C OVAL & ROADCOURSE

Millville, New Jersey 08033; William Denstoz, 856-327-4640

POTBELLYS R/C SPEEDWAY

Pittsboro, New Jersey 08560; Drew Anastasio, 856-207-2495; email: potbelly@potbellysrc.com; web: www.potbellysrc.com

SOUTH JERSEY COST CONTROLLED RACING

Sicklerville, New Jersey 08081; Ray Murray, 856-629-9413; email: RaysTrack@webtv.net; web: www.sjccr.com

SPEEDPRO DRAGWAY

Elizabeth, New Jersey 07206; Albie Nizolek, 908-351-5080; email: funnycar176@aol.com; web: www.speedpro.org

THE RACE PLACE

Farmingdale, New Jersey 07731; John Fary, (908) 938-5215

TRAX70

Browns Mills, New Jersey 08015; Patrick Uket, 201-563-8000; email: patrick@obassey.com; web: www.Trax70.com

WACKY RC RACEWAY

Roselle, New Jersey 07203; Tony Williams or Kimble Wright, (908) 241-6700

NEBRASKA

NEW MEXICO

Albuquerque R/C Off-Road Raceway, Albuquerque, New Mexico 87120; Bill Mitchell, (505) 250-3411(m); email: info@rcDirTrack.com; web: www.rcDirTrack.com

SPEED ZONE

Clovis, New Mexico 88101; Brad Ferguson, 505-769-1737; email: speedzone@yucca.net

NEBRASKA

NEW YORK

(CR R/C Racers) Capital District Radio Controlled Stock Car Club, Nassau, New York 12123; Kirt Coonrad, 518-766-0029; email: cdrcscc@hotmail.com; web: http://cdrcracers.50megs.com/

BARNSTORMERS RC RACEWAYS

Chester, New York 10918; Lou Sytsma, 845-469-BARN(2276) o; email: iamsytsma@hotmail.com; web: www.barnstormersrc.com

BRENNAN'S RC HOBBIES

Vernon, New York; Bill or Tom Brennan, (315) 829-4930

BROOKLYN HOBBIES

Brooklyn, New York 11234; Chris Palermo, 718-951-2500; email: brooklynhobbies@aol.com; web: www.brooklynhobbies.com

BRUCKNER RACING

Bronx, New York 10465; Thomas Baffers Sr., (800)-288-8185

CHIPMUNK HILL R/C SPEEDWAY

Theresa, New York 13691; Ted or Pete House, (315) 628-5065

RACE CITY MOTOR SPEEDWAY

Mooresville, North Carolina 28115; Ray Kelly, 704-660-FAST; email: Kellyrcms@cs.com; web: racecitymotorspeedway.com

NEBRASKA

Competition Hobby Supplies & Speedway, Cohoes, New York 12047; Howie Cummings, 518-786-3622; email: howard.cummings@verizon.net; web: www.competitionhobbysupplies.com

EAST COAST R/C HOBBIES

Brooklyn, New York 11204; John Giangrande, 718-627-3814; web: www.eastcoasthobbies.com

FASTRAKS

Hogansburg, New York 13655; Mark Castonguay, (518) 358-3686; email: froghobb@northnet.org; web: www.fastraks.8m.com

HOBBY ZONE RACEWAY

Ozone Park, New York 11417; Brian, Sean or Adam, (718) 641-9001; email: moonchaserwolf@aol.com

LIL WHEELS RACEWAY

Oswego, New York 13126; Bill Meyer, 343-6566; email: lilwheelsraceway@hotmail.com; web: lilwheelsraceway.txo.org

LONG ISLAND RACEWAY

Farmingdale, New York 11735; James, (516) 845-7223; web: www.raceway.com

PRO SPEEDWAY

Cattaraugus, New York 14719; Marc Pritchard, (716) 257-3101

RACING CITY HOBBIES & R/C RACEWAY

South Glens Falls, New York 12083; Ken Taylor, 518-792-7272; email: racingcity@verizon.net; web: www.racingcity.com

RADIO HILL RACEWAY

Dundee, New York 14837; Bill or Greg, 607-243-8641 (Bill);

RAMPAGE R/C & HOBBIES

Hyde Park, New York 12538; Brian Walker, (845) 229-1379

SOUTH SHORE HOBBY & RACEWAY

Coram, New York 11727; Benny or Bonnie, 631-696-8500; email: southshorehobby@ionline.com

SOUTHERN TIER RACEWAY

Owego, New York 13827; Anita Harding, (607) 687-5395

TARMAC

Tarmac Ultimate R/C Raceways, Poughkeepsie, New York 12603; Todd Plase, 845-342-5409 (Todd); email: toddp@tarmacraceway.com; web: www.tarmacraceway.com

WALT'S HOBBY

Syracuse, New York 13209; Bruce, 315-453-2291; web: www.walts-hobby.com

WILLIS HOBBIES R/C SPEEDWAY

Minneapolis, New York 11501; Ken Ford, 516-746-3944; web: www.willishobbies.com

NEBRASKA

NORTH CAROLINA

Antique Barn & Hobby Shop, Wilson, North Carolina 27893; Steve, (252) 237-6778; email: antiquebarn@earthlink.net; web: www.theantiquebarn.net

CHATHAM R/C RACEWAY

Bear Creek, North Carolina 27207; Dwight Fields, (919) 898-4518; email: crccr@wave.net

R.C.R. SPEEDWAY

Salisbury, North Carolina 28147; Ronnie Linker, (704) 637-2565

RACE CITY MOTOR SPEEDWAY

Mooresville, North Carolina 28115; Ray Kelly, 704-660-FAST; email: Kellyrcms@cs.com; web: racecitymotorspeedway.com

NEBRASKA

Rosewood RC Speedway, Goldsboro, North Carolina 27530; Glenn Elam, 919-734-7754; email: gelam49@hotmail.com; web: www.glennshobbycorner.com

SANDHILLS RACEWAY

Southern Pines, North Carolina 28459; Mike Russel, 910-245-4450; email: mrmr@mindspring.com; web: www.sandhillsraceway.com

SOUTHERN R/C MOTORSPORTS CLUB

Shallotte, North Carolina 28459; Chris Dixon, (910) 754-6315; email: nohope@atmc.net

XTREME DIRT RC RACEWAY & XTREME ON-ROAD RACEWAY

Kannapolis, North Carolina 28083; Chris Lyerly-Xtreme Hobbies, Inc., 704-933-5321; email: thehobbyshop02@aol.com

OHIO

AK Hobby & Raceway, Cincinnati, Ohio 45211; Tim Tolle, (513) 661-7080; email: tim@akhobby.com; web: www.akhobby.com

AMERICAN OHIO SPRINT CAR ASSOCIATION

Wickliffe, Ohio 44092; Gary Waldheim, 440-944-9966; web: www.aosca.8m.com

BLACK SWAMP RC CAR CLUB

Toledo, Ohio 43623; Riders Hobbies, 419-843-2931; email: ridersrcclub@webtv.net; web: www.blackswampcjb.net

CORCAR / STAR CINEMA

Grove City, Ohio 43123; Bill Stevenson, (614) 870-7159

D&J R/C RACEWAY

Orrville, Ohio 44667; Don, (330) 682-4266

DEFOSSE RACEWAY

Ripley, Ohio; Greg DeFosse, (937) 377-2063

HOBBYLAND RACEWAY

Proctorville, Ohio 45669; Craig Harber, 740-886-0502 or 740-8-8; email: pitroweracing@webtv.net; web: hobbylandraceway.homestead.com

MID OHIO DIRT OVAL

Lexington, Ohio 44004; D&D Hobby Center, (419) 884-0001

NOTHING BUT AIR R.C. TRACK

Logan, Ohio 43138; Gary Lloyd, 740-385-0288

OHIO VALLEY OFFROAD R/C RACEWAY

Jerusalem, Ohio 43747; Kevin Wilson, (740) 926-1738; email: consol@1st.net; web: www.ovor.8m.com

OUTLAW SPEEDWAY

Lexington, Ohio; Eric Radio, 419-884-0001; email: kramerj@cs.com; web: rcdirtval.freerivers.com

R/C HOBBY

Medina, Ohio 44256; Chris Kohout, 330-723-0255; email: kohouty@aol.com

RACEWAY 42

Mansfield, Ohio 44905; Chris Cates, 419-589-4173; email: mopar340v8@aol.com; web: www.RaceWay42.ito.com

RIVER RAT RACING

Ripley, Ohio 45167; Jon Faris, 937-392-9298; email: honey3@bright.net; web: www.riverratraceway (under construction)

T.S.R.C.A.R.

Hamilton, Ohio 45011; Dennis Young, (513) 367-5634; email: scalerac@aol.com; web: www.tristateautoracers.com

NEBRASKA

KEY TO SYMBOLS

- | | | | |
|--|-----------|--|--------------------|
| | Indoor | | Concrete |
| | Outdoor | | Asphalt |
| | Off-road | | Minis & Micros |
| | On-road | | On-site hobby shop |
| | Oval | | AC power |
| | Dirt oval | | Auto lap counting |
| | Carpet | | Food available |

TARCAR, Toledo, Ohio 43617; Bill Bridges, (419) 826-3859



Ultra Racing R/C Hobby and Track, Hamilton, Ohio 45015; Ed Lewis, 513-863-7342; email: UltraRacing@aol.com; web: UltraRacing.com



Van Wert R/C Raceway, Van Wert, Ohio 45891; Mark Davis, (419) 232-2112



Y-City Hobby & Speedway, Zanesville, Ohio 43701; Kevin McKenna, (740) 455-3025; email: Kevin@ycity-hobby.com; web: www.ycityhobby.com



OKLAHOMA

Action Hobbies, Tulsa, Oklahoma 74145; David Cole, (918) 663-8998; email: acthoib@aol.com



Action RC Speedway, Oklahoma City, Oklahoma 73135; Jerry Hawthorne, (405) 670-7770; email: ginnahawthorne@cox.net; web: www.action-rc.com



Adams Creek R/C Speedway, Broken Arrow, Oklahoma 74014; John Beighle, (918) 355-1416



Competition R/C, Oklahoma City, Oklahoma 73146; James or Louise Brown, (405) 634-0809; email: comp-rc1@aol.com



Enid R/C Speedway, Enid, Oklahoma 73703; Darin Pendleton, (580) 554-9400; email: darin@enid.com; web: www.enidrcracing.com



HobbyTown USA-Norman OK, Norman, Oklahoma 73072; Todd Jensen, (405) 292-5850



Wings N Things Raceway, Tulsa, Oklahoma 74105; Heath Anderson, (918) 745-0007



OREGON

Competition Racing Association, Portland, Oregon 97230; Mark Taylor, Pres., 503-761-1334; email: mark@cra-news.com; web: cra-news.com



R/C Plus Hobbies Raceway, Salem, Oregon 97302; Ron Smith, (503) 364-9188; email: rcplus@rcplus.com; web: www.rcplus.com



Rose City Scale Racing, Portland, Oregon 97201; Dominic, 503-484-8887; email: dominic@rc-cars.com; web: www.rc-cars.com

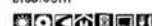


PENNSYLVANIA

Bumps & Jumps RC Speedway, Etters, Pennsylvania 17319; Chris McKinney, 717-832-3000; email: bumpsandjumpsrcc@comcast.net; web: http://www.bumpsandjumpsrcc.com



DC Ultra Trax, Warminster, Pennsylvania 18974; David Cowan, (215) 672-5200; web: www.jrchobbies.com



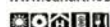
Dirlburners Club sponsored by Schmidt's Hobby, Windber, Pennsylvania 15963; Bruce Schmidt, (814) 266-4118; email: rcman@foodcity.net; web: www.rcman.net



Dreamboat Hobbies, Warren, Pennsylvania 16365; Louie Dussia, (814) 723-8052; email: dreamboat77@yahoo.com; web: www.dreamboatobbies.com



J&K Hobbies and Raceway, Jersey Shore, Pennsylvania 17740; Shawn Winter, 570-398-8171; email: rcman@aol.com; web: www.JandKHobbies.com



Kranzel's R/C Raceway & Hobbies, Lemoyne, Pennsylvania 17043; David or Stuart Kranzel, (717) 737-7223; web: www.kranzelsrchoobbies.com



Little Plum R/C Hobbies, Lock Haven, Pennsylvania 17745; Larry Duck, (570) 769-1984



Marshall's R/C Raceway, Honesdale, Pennsylvania 18431; Bill or Dot Marshall, (570) 729-7458



McCullough's Offroad, Sarver, Pennsylvania 16055; Doug McCullough, (724) 352-0116; email: dmcull323@aol.com; web: www.mcculloughsoffroad.com



Newville RC Speedway & Hobbies, Newville, Pennsylvania 17241; Randy or Mike, 717-776-5568; email: newvillerspeedway@yahoo.com; web: www.newvillerspeedway.com



Pit Stop Hobbies-Mount Joy, PA, Mount Joy, Pennsylvania 17552, (717) 653-6222; email: pitstophobbies@pit-stophobbies.net; web: www.pitstophobbies.net



Racers Edge R/C Racing & Hobbies, Smethport, Pennsylvania 16749; Rick Morgan or Johna Simar, (814) 887-9256; email: postmaster@racer-ersedge.com; web: www.racer-ersedge.com



RB Motorsports & Hobby, Northumberland, Pennsylvania 17857; Rick Bunting, (570) 473-8711



RC Avenue II, Bradenville, Pennsylvania 15650; Chris Demyan, 724-537-0592; email: 12s@msn.com



RC Outfitters, Hanover, Pennsylvania 17331; Chris Shaffer, (717) 633-9490; email: thestore@rchohobbies.com; web: www.rchohobbies.com



Riverside Raceway, Warren, Pennsylvania 16365; Jeff, (814) 723-4211



Staub Bros. R/C Speedway, Gettysburg, Pennsylvania 17325; Todd or Scott Staub, 717-334-8488; web: www.staubbrothers.com



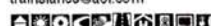
The Raceway at River Junction, Beaver, Pennsylvania 15009; Sam or John, (724) 728-5571; email: riverjct@stargate.net



Thunder Road Raceway, Limerick, Pennsylvania 19468; Barry or John, 610.831.8898; email: xslotgdx@aol.com; web: www.tow-barr.com



Trains & Lanes Raceway, Easton, Pennsylvania 18045; Jeff Setzer, (610) 253-8850 or (8) email: trainslanes@aol.com



TRP, Kingston, Pennsylvania 18704; Rob Yeager, 570-283-3066; email: rrcrb99@aol.com



Washington RC Raceway, Washington, Pennsylvania 15301; Aaron Stimmel Jr., 724-228-8396



WillCam Raceway, Punxsutawney, Pennsylvania 15767; James Campbell, (814) 939-4251



PUERTO RICO

Bayamon R/C Park, Bayamon, Puerto Rico 00956; Damian Cruz & Javier Rivera, (787) 869-8092 & 401; email: damian@bayamonrccpark.com; web: www.bayamonrccpark.com



HI-Speed C Raceways, San Juan, Puerto Rico 00926; Carlos Ortiz, (787) 283-0198; email: hispeed@hotmail.com; web: www.hispeedhobby.com



Mech Tech Touring Park, Caguas, Puerto Rico 00725; Humbert (Tito) Lizardi, (787) 739-1572; email: tlizardi@hotmail.com

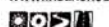


Tropical Raceway Track, Manati, Puerto Rico 00674; Hector Pabon/George Pabon, 787-785-9529; email: trophob@coqui.net; web: www.tropicalhobby.com



RHODE ISLAND

Insane Track, Cranston, Rhode Island 02907; Jose Jimenez, 401-467-8878; email: chevygo@aol.com; web: www.insanehobbies.homestead.com



SK Hobbies Inc., Johnston, Rhode Island 02919; Slim or Keith, (401) 453-1440



SOUTH CAROLINA

Atomic Racers, Aiken, South Carolina 29803; Bill Jackson, 706-855-0846 or 803-



Carolina R/C Speedway, Easley, South Carolina 29640; David, 864-295-1209; email: cprahr@mindspring.com; web: www.carolinarc.com



Darlington R/C Raceway at Hobbies & More, Darlington, South Carolina 29532; Jerry Pollard, (843) 393-0355; web: www.hobbiesnmore.com



DirtSinger's, Hartsville, South Carolina 29550; Don Dietz, 843-383-0017; email: dshobbiesdon@aol.com; web: www.dands-speedway50megs.com



HI Voltage Raceway, Anderson, South Carolina 29625; Whitner Bowen, 1-864-225-8680; email: Jahlion247@aol.com



The Grove Racing Center, Rockhill, South Carolina 29730; Don Faris, (803) 327-4121; web: www.hobbystop.com



SOUTH DAKOTA

Dakota Off-Road Racers, Aberdeen, South Dakota 57401; Kevin, 605-225-5223



Grassland Racers, Black Hawk, South Dakota 57718; Ryan Logan, (605) 787-5632



Triple B, Winner, South Dakota 57580; Broc Stout, (605) 842-2699



TENNESSEE

Hobby Town USA, Franklin, Tennessee 37067; Bobby Mills, (615) 771-7441; email: htut26@aol.com



Mid-South Racing Association, Memphis, Tennessee 38133; Michael Feliciano, 901-268-7969; email: michael.feliciano@expeditors.com; web: www.msra-racing.com



MSA R/C Racing, Crossville, Tennessee 38555; D.R. Findley, (931) 456-0027



Need For Speed Raceway R/C, Chattanooga, Tennessee 37415; Ronnie Cox, (423) 876-9019



Robertson's R/C Raceway, Jackson, Tennessee 38301; Travis Robertson, 731-423-6984; email: RobertsonsRC@aol.com



SpeedZone Raceway Park, Athens, Tennessee 37303; Mike Henderson, 423-744-8358; email: speedzon@msn.com; web: www.speedzonerraceway.com



W.O.W. Raceway, Beech Bluff, Tennessee 38313; Brad Jones, 731-427-1625; email: wowracer@charter.net; web: go.to/wowracing



TEXAS

215 Speedway, Abilene, Texas 79602; Clyde Gardner, (915) 673-2351



A's Hobbies, San Antonio, Texas 78227; Alfonso Robles, 210-645-1050; email: alshobbies@usa.com; web: www.alshobbiesusa.com



Austex RC, Austin, Texas 78757; Michael, 512-458-2324; web: www.austexrc.com



B&B R/C Hobbies, Big Spring, Texas 79720; Walter Bumbulis, (915) 283-1790; email: b&brchobbies@apex2000.net



Big Mike's R/C Raceway, Longview, Texas 75604; Mike Sumrow, 903-297-7814



Drycreek Raceway, Greenville, Texas 75936; Micky Alphin, 903-527-5381; email: drycreek@pulse.net; web: www.pulse.net/drycreek



Finishline Raceway, Hurst, Texas 76053; Damon Darnall, (972) 404-0463; email: Finishline@ev1.net; web: http://users.ev1.net/~finishline/index.htm



Hal's Hobby Raceway, El Paso, Texas 79936, (915) 591-2213; web: www.halshobbywarehouse.com



Hobby Center Race Track, Houston, Texas 77598; Issac Ben-Ezra, 281-488-8697; email: Hobbycenter@issac-models.com; web: www.hobbycenter.cc



Hobbytown USA-San Antonio TX, San Antonio, Texas 78209; Clark, (210) 829-8697; fax



Indy R/C World, Garland, Texas 75041; Steve Webster, (972) 271-4844; fax; web: www.indyrcworld.net



Js Action R/C, Pasadena, Texas 77504; Jack Williams, 713-946-8888; email: jayactionrc.net; web: www.jsactionrc.com



K&M Racing, New Caney, Texas 77357; Brent Mahaffy, (281) 399-9777



M&M Hobby Center, Bellaire, Texas 77401; Meir Ben-Ezra, 713-661-7137; email: mandm@mnhobby.com; web: www.mnhobby.com



MBRC, Dallas, Texas 75093; Mike Battelle, email: info@mbrc-racing.com; web: www.mbrc-racing.com



Mike's Hobby Shop Superstore & Raceway, Carrollton, Texas 75006, 972-242-4930; email: mike@mikes hobbyshop.com; web: www.mikes hobbyshop.com



Reflex R/C, Houston, Texas 77055; Joseph Chen, (713) 464-4458; web: www.reflexrc.com



T&M Raceway R/C Drag Racing, Addison, Texas 75244; Marvin Jackson, (972) 416-0445; email: mjjackson@tmraceway.com; web: www.tmraceway.com



T&T R/C Cars, Plano, Texas 75024; Guy Sullivan, (972) 633-2470



The Rollcage, Greenville, Texas 75402; Guy Allen, (903) 883-0332; email: rollcage2000@therollcage.com; web: www.therollcage.com



Thompsons RC Raceway, Lufkin, Texas 75901; Mark Thompson, (936) 637-0093



W.E.S. Hobby Race, Beaumont, Texas 77701; Marty Walker, (409) 839-4929



X-Treme Hobbies, Round Rock, Texas 78664; Jef Santos, (512) 310-0444 or (5)



UTAH

Hobby Stop Raceway, Riverdale, Utah; Todd Hamilton or Beazer Martin, (801) 622-0841



Intermountain R/C Raceway, Magna, Utah 84044; David Mott, 801-250-8303; email: rcmother1@aol.com; web: www.IRCRaceway.com



Outback Raceway, Ogden, Utah 84404; Steve Brown or Beazer Martin, 801-726-3458; email: Steve@rmrc.com or Beazer@bibbs.com; web: www.rmrc.com or www.beazershobbies.com



Vision Hobby, Orem, Utah 84057; Ken Rice, (801) 226-6226



VERMONT

Empire Hobbies Off-Road Raceway, Saint Albans, Vermont 05478; Scott or Jen, 877-446-2243; email: empirehobbies@adelphia.net; web: www.empirehobbies.com



R/C Toy Box Hobbies & Tracks LLC, Saint Johnsbury, Vermont 05819; Raymond Richard, 802-748-1030; email: ray@rctoybox.com; web: www.rctoybox.com

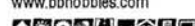


VIRGINIA

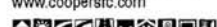
Brad's Hobbies, Staunton, Virginia 22401; Brad, (540) 885-3642; email: brad@brads hobbies.com; web: www.brads hobbies.com



Brown Brothers Hobbies, Dumfries, Virginia 22026; Joe or Bob Brown, 703-221-5746; email: joe@bbhobbies.com; web: www.bb hobbies.com



Cooper's Radio Control Race Center Inc., Chatham, Virginia 24531; Norris L. Cooper, 434-724-4182; email: nlcooper@earthlink.net; web: www.coopersrc.com



KC's Radio Control & Repair, Lynchburg, Virginia 24503; Curtis or Kim Wright, (804) 384-8586



Linville Hobbies Raceway, Linville, Virginia 22834; Jason or Jerry Shenk, (540) 833-2222; email: linvillehobbies@juno.com; web: www.linvillehobbies.com



Olde Towne Hobby Shoppe, Manassas, Virginia 20110; Jeff Gough, (703) 369-1197; web: www.ManassasHobby.com



Roanoke R/C Club, Salem, Virginia 24153; Chad Trent, 540-314-6257; email: roanokerc@dooleyprinting.com; web: roanokerc.cb.net



Shamroc Raceway, Winchester, Virginia 22601; Charlie Greathouse, 540-678-8878; web: www.shamroc.homestead.com/front-page.html



Stream Hobby Shop, Newport News, Virginia 23605; Rusty Kennedy, 757-501-0720; email: stream.hobbyshop@verizon.net; web: streamhobbyshop.com



The Tillyard, Dayton, Virginia 22821; Homer, 540-828-3476; email: homer@tillyard.com; web: www.tillyard.com



Thunder Road RC Speedway, Gordonsville, Virginia 22947; Robert Binger, 434-296-6549; email: tripod@thunderroadrc.com; web: www.thunderroadrc.com



Tidewater R/C Speedway, Inc., Hampton, Virginia 23663; Jim Pike, Rob Marsetta, Dave Pritchard, (757) 723-8927; email: zeeeyas1@hotmail.com



WASHINGTON

A-Main Raceway, Vancouver, Washington 98685; Monty Coleman, (360) 571-8404; web: www.ainmainraceway.com



Atomic Hobby, Issaquah, Washington 98027; Stanley Ng, (425) 391-8890; email: atomichobby@msn.com; web: atomichobby.com



Burlen Toyota R/C, Seattle, Washington 98148; Ray Meek, (800) 654-6456



Cedardale Raceway, Mount Vernon, Washington 98273; Craig, 360-755-9464



Fantasy World Raceway, Tacoma, Washington 98408; Dave Kleinman, (253) 473-6223; email: sales@fantasy-worldhobbies.com; web: www.fantasy-worldhobbies.com



Four Season R/C Racing, Olympia, Washington 98506; Gary and Sharon Brown, (360) 491-2430



Hank Perry Raceway, Spokane, Washington 99023; Hal Hudson, 509-879-3503; email: halshudson@msn.com



HobbyTown USA--Lynnwood WA, Lynnwood, Washington 98037; Rich or Jamie, 425-774-0819; email: rhhobbytown@aol.com



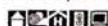
HobbyTown USA--Tacoma WA, Tacoma, Washington 98408; HobbyTown USA Shop, (253) 474-7787



Paradise Raceway and Hobbies, Spokane, Washington 99207; Mark, 509-483-1843; email: paradiserc@hotmail.com; web: www.websellers.com/paradise



Race City, Auburn, Washington 98002; Bruce, (253) 939-2515; email: auburn@pacifier.com



Rain City RC Raceway, Lynnwood, Washington 98036; Pete or Debbie Cartwright, 425-776-8241; email: info@raincityraceway.com; web: www.raincityraceway.com



Schmidt's Auto Parts, Marysville, Washington 98271; Jon Faila, (360) 653-8838; email: schmidtscrc@aol.com; web: www.schmidtscrcraceway.com



Spokane Indoor Raceway, Spokane, Washington 99212; Brian Batch, 509-487-2122



Tacoma R/C Raceway, Tacoma, Washington 98406; Scott Brown, (253) 565-1935; web: www.tacomarc-raceway.com



West Coast Hobby & Raceway, Richland, Washington 99352; Darren Shank, (509) 375-4995



WEST VIRGINIA

Burr Fab R.C. Raceway, West Union, West Virginia 26456; Mark Travis, 304-873-2487; email: burrhouse1@cs.com



Fulton's R/C Raceway, Wheeling, West Virginia 26003; James Fulton, (304) 233-5355



Mountwood Raceway, Vienna, West Virginia 26105; Tom Allen, 304-295-3234; email: ray@ovrcc.com; web: www.ovrcc.com



Quiet Dell Raceway, Fairmont, West Virginia 26554; Darris, (304) 366-1441; email: Tateracing@aol.com



WISCONSIN

ABC R/C Inc & Raceway, Waukesha, Wisconsin 53186; Dick Mathiesen, 262-542-1245; email: Help@abcrchobby.com; web: www.abcrchobby.com



Gary's Hobby Center, Racine, Wisconsin 53403; Bill Phalen, 262-554-8884



Hobbytown Oshkosh-The New Revolution Raceway, Oshkosh, Wisconsin 54901; Bill Magritz-Race Director, 920-426-1840; email: hobby807@bcglobal.net; web: www.hobbytownoshkosh.com



KDM Hobby & Raceway, Abbotsford, Wisconsin 54405; Kevin Michlig, 715-223-4414; email: kdmhobby@charter.net; web: kdmhobby.homestead.com/kdmhobby.html



MARCCA Raceways, Poyette, Wisconsin 53955; Don Hartley, 608-243-1778; email: hotrodhartley@aol.com; web: www.marcca.com



Mid-West Tri-Clone/Tri-Clone Off Road, West Bend, Wisconsin 53095; Dave Hilpert, 262-334-0429 or 262-; email: mwtc@hnet.com; web: www.triclone.com



Oshkosh RC, Oshkosh, Wisconsin 54902; Bob, 920-426-1840; email: hobby807@bcglobal.net; web: www.hobbytownoshkosh.com



Pro-Star Racing, Green Bay, Wisconsin 54301; Chuck or Randy, Chuk-920-494-1233/R; web: www.prostartracing.com



S&N's Trackside Hobbies and Raceway, Milwaukee, Wisconsin 53005; Scott Ernst, 262-783-4699; email: sernst@trackside.com; web: www.trackside.com



The Shortall Raceway, Eau Claire, Wisconsin 54701; Scott Schoettle, 715-838-8350; email: Scottschoettle@mcclusa.net



WYOMING

Xtreme Hobbies & Raceway, Gillette, Wyoming 82718; Krieg Balls, 307-682-6077; email: xtremetraceway@collinscom.net



ARGENTINA

Circito R/C Lobos, Lobos 7240; Rupert Bruce, 54-02227-422905; email: rclobos@yahoo.com; web: www.rclobos.8m.com



Circuit M.R. Models, Buenos Aires 1428; Maximiliano Roballos, 54 11 4557 1000; fax; email: info@kyosho-argentina.com.ar; web: www.kyosho-argentina.com.ar



Club A. Velez Sarsfield, Buenos Aires; Jorge Herrero, 54-01-658-5851



AUSTRALIA

A.C.T. Model Car Racing Club, Wannassa; Gary Davey, 61-6-2871411



A.C.T. Remote Control Car Club, Kambah; Rob Jorgensen, 61-2-6231-9925; email: bjorgo@industry.gov.au; web: www.actrcc.com



Aubry R/C Car Club, Aubry 2640; Ron Langman, 080-247-128



Brisbane Dirt Racing, Brisbane 4053; Jeff Chandler, 07 3355 7476, 041 8; email: bigfix@bigpond.net.au; web: www.users.bigpond.net.au/bigfix



Canberra Off Road Model Car Club, Queanbeyan 2902; Graham Brown, 02 6241 3070; email: gbrown@webone.com.au; web: www.webone.com.au/~gbrown/mrcc/iindex.html



Canberra Off-Road Model Car Club, Narrabundah 2604; Graham Brown, 61-6-241-3070



Carline R/C Model Car Club, Inc., Greenwood; Mitchell Davies, 0418 955 981; email: t3davies@inet.net.au



Castle Hill Radio Control Off Road Car Club, Castle Hill 2754; Peter Ellis, 0412 257 353; email: chrccrcc@next-century.com.au; web: www.2.nextcentury.com.au/chrcrcc



Central Coast ORCC, Bateau Bay 2261; Peter J. Knight, 61-43-693-698



Illawarra RCECC, Albion Park Rail 2527; Mel or Andrew, 042-714-683



Lakeside R/C Racing Car Club, Lansvale 2166; R. Bartolozzi, 62-2-907-9800



Melton Electric Circuit Car Association, Melton 3307; Arthur Joslin, 61-3-9747-8805



NSW Indoor R/C Raceway, Hurstville 2220; Anthony Lee or Walter Ly, 02-9585-8810



Penfield Park, Adelaide 5108; Trevor U'New South Walesorth, (618) 8289-5010



R.C. Speedway, Newcastle 2300; Andrew Dillon-Smith, 02-49265966



TFTF - Templestowe Flat Track Racers, Templestowe 3106; Nigel George, see website; email: tftf@imagefile.net; web: drive.to/tftf



The Bayside Raceway, Brisbane 4178; Nigel Bell, 07 3893 1864; email: mwr1@dingoblu.net.au



Victorian Radio Control Drag Racing Association, Melbourne 3940; John de Tracy, +61 03 59867509; email: bjmo1@hotmail.com; web: www.ozemail.com.au/~john59/index.html



Woe Waa's Offroad RC, Burren Junction 2386; Shane, 61-02-6796-1339



Wodonga R/C Car Club, Wodonga 3690; Paul Townsend, 02-6056-0706; email: townsend175@ozemail.com.au



AUSTRIA

RMC-Wien, Vienna A-1220; Herbert Holze/Martin Hrzak, +43-664-4730376



BARBADOS, WEST INDIES

R.O.A.R. (Radio Operated Auto Racing), St. Michael, Marva Clarke, (246) 427-3907



BELGIUM

ATR-Alka-Tele-Racing, Limburg; Alken, 0032-11-25-49-03



MBV-Kampenhout, Kampenhout 81910; Frank Mostrey, 0-16-65-75-18



Model Racing Club Oudenaarde (MRCO), 9700 Oudenaarde; Nicky Delmote, and fax: 32 55 30 36; email: mrco_racing@hotmail.com; web: mrco-racing.tripod.com



MRCC, De Burg; Montie, 75-71-63



R.C.R., Retie 2470; A. Eelen, 32-14-379685



BRAZIL

AGARC Associação do Golano de Automodelismo Radiocontrolado, Aparecida de Goiania 74980-070; Zeca, Carol, Warner or Rodrigo, 062 9979 9009; email: zeca.net@terra.com.br



Amoc Cassioia do Modelismo B. Cambario, Bal Cambario 88.330-000; Leo Cesar, (047) 366-0001



Brasilia R/C Motor Circuit, Brasilia 70000; Alexandre (Alex), 55-061-273-7205



C.A.A.R. Curiliba Associação de Automodelismo Radiocontrolado, Curitiba 82650-530; Ronaldo Assumpcao, 55-41-354-2804



Electric Car Club R/C Santos, Santos 11065-001; Estevam or Arnaldo, 55-013-232-2536



Hobby Center, Brasilia 70.273, 061-242-0488



Hobby Planet Racing Club, Campinas 13091901; Daniel, Helio, Luciano, 019 258 2768



Jungle Drive, Rio de Janeiro 21940-490; Paulo Brito, (021) 396-0851 or (0



Off Roaders, Sao Paulo 05640; Waldir Ielpo, (055) 011-260-5628;

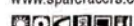


CANADA

C.A.R.C.A.R., Calgary; Kerry Nevatte, 403-630-8852; web: www.carcar.ca



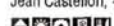
Cactus Speedway, Kingsville N9Y 2V6; Bob Tanner, 519-326-3176; email: khunter@sparcracers.com; web: www.sparcracers.com



Cam R/C, Coquitlam V3E 1K9; Roger Brown, 604-945-3888



Circuit J.C., St. Polycarpe J0P 1X0; Jean Castellon, 450-265-3675



Circuit Teleguide ST Roch, ST Roch DE L' Achigan J0K 3H0; Gerald Beauchamp, 450-588-4254; email: info@grcsr.com; web: www.grcsr.com



Copetown Raceway, Copetown; Adam Filipowicz; email: adamfilip@home.com; web: copetown-raceway.8k.com



Dirt City RC, Albany, Oregon 97321; Doug Vertrees, (541) 791-1089; email: quicktemper@comcast.com



Dynamic Hobbies, Nepean K2E7S4; Fred Zufelt, (613) 225-9634



HobbyHobby P.L.R.C., Mississauga L5M 1K8; Tom Bakonyi, 905-858-7978; email: info@hobbyhobby.com; web: www.hobbyhobby.com



Honda House Motor Speedway, Chatham N7M 1P9; John Elliot, (519) 354-5530



KEY TO SYMBOLS

- | | | | |
|--|-----------|--|--------------------|
| | Indoor | | Concrete |
| | Outdoor | | Asphalt |
| | Off-road | | Minis & Micros |
| | On-road | | On-site hobby shop |
| | Oval | | AC power |
| | Dirt oval | | Auto lap counting |
| | Carpet | | Food available |

Importations Louis Durmand, Saint-Jean-Baptiste-de-Nicolet J3T 1E5; Louis Durand, (819) 293-6097; email: ldurand@sogetel.net; web: public.sogtel.net/ldurand/



IROCC, Victoria V9B 5W9; Daryl Jones, (250) 478-8013; email: dbjones@shaw.ca; web: http://www.irocc.ca



Johns Jump & Grind R/C Track, Waterville B0P 1V0, John Egan, 902-538-9920; email: john.egan@ns.symbio.ca; web: www.jagrc.com



J-T International Raceway, Napanee K7R 8A1; N. O'Neill, (613) 354-0099



Kays Hobbies R/C Raceway, Moorefield N0G 2K0, Doug Kay, 519-638-9990; email: dougk@golden.net; web: www.kayshobbies.place.ca



Leading Edge R/C Speedway, Kingston K7M 3Y5; Mike and Tony Daicar, 613-389-4878



Mid-Canada R/C Auto Racing, Winnipeg R2J 4E6; Boyd Chwartzacki, 204-444-4230; email: midcanadarc@mts.net; web: www.midcanadarcautoracing.com



Miniatures & Passions, Ste. Therese J7E 2B4; Gilles Lachance, (450) 979-7989



Mini-Z Hobby Shop, Markham L3R 2Z4; Brian Pong, (905) 940-0898; email: info@minizhobbyshop.com; web: www.minizhobbyshop.com



Prince George Radio Controlled Car Club, Prince George V2M 5R9; Doug Waller, 250-561-0035



R/C Champ Raceway, Scarborough M1H 3A4; Ben, Matthew or Louie, (416) 289-8717; web: www.rcchamp.com



R/C Fanatic de la Capitale, Charlesbourg G1G 3Y4; Marc Page (Club President), 418-265-2678; email: info@rcfanatic.com; web: www.rcfanatic.com



Recreation R/C Raceway, Prince George; Doug Waller, (604) 561-0035



Steelton Speedway, Binbrook L0R 1C0; Trevor Harrison, 905-692-3407 (ask for: email: the_prodigy@zdned-tonebox.com; web: www.geocities.com/s_speedway)



Sudbury Organized Auto Racing, Val Caron P3E 1E6; Brad Peacock, 705-897-1435 (Brad); email: soarsudbury1@hotmail.com; web: www.sudburyrc.no-ip.com



The All New R.C. World, Hamilton L0R 1W0; Dave, Larry or Brian, (905) 765-2301 or (9)



Thompson Valley R/C Raceway, Kamloops V2E 2K7; Brent Wende, (250) 372-2917; email: tvrc@shaw.ca



Vancouver R/C Road Racers, Coquitlam V3E 1K9; Roger Brown, (604) 945-3888



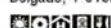
Nico Prohens Off/On Roaders, Ovalle 1; Nicolas Prohens, (56) 53-711579; email: nprohens@entelchile.net; web: 38939070.home.icq.com/v



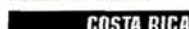
OFF/ON ROADERS, Santiago 1; Mauricio Wetter Ferrer, (56) 09-8404174; email: mwetter@entelchile.net; web: 38939070.home.icq.com/v



Club De Automodelismo Colombiano, Sanatafe De Bogota D.C.; Jorge Delgado, 1-6130588



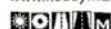
Garso Raceway, Cucuta; Gabriel Rodriguez, 975-751892



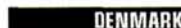
Club de Automodelismo RC10 Costa Rica, San Jose; Osvaldo Aeverhoff A, (506) 2862353; email: nitrocr@hotmail.com



Hobbymania, Hispanidad San Pedro; Randall Jimenez, 506-280-9078; email: hobbymanias@hotmai.com; web: www.hobbymanias.com



Racing Model Club, Nicosia; Andrea Sotiuriu, 493186; fax: 493229



Brondby Motor Club, Brondby 2605; Soren Boy Holst, 45-36-472-462



Holstebro R/C Buggy Club, Holstebro 2600; Michael Brusholt, 45-97-412-734



Klub 144 Raceway, Lyngby 2800; Henrik Carstens, 45-42-88-3691



Rainbow Raceway, Copenhagen 2600; P. Christensen, 45-52-848-504



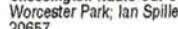
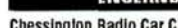
Thor Miniace Odense, Odense N 5240; Ulrich Rasmussen, 45-65-303-707



Adoca R/C Speedway, Santo Domingo, (809) 220-5266



La Barranquilla R/C International Speedway, Santiago, (809) 582-2303



Chessington Radio Car Club, Worcester Park; Ian Spiller, 0252-20657



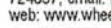
Hampshire Racing Center, Basingstoke; Tony Eudola, 44-1276-61402



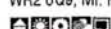
Hinckley RCCC, Hinckley; Bruce, 01455-890580



Snetterton Market Model Car Club, Norwich NR16 2JU; Lee Shore, 01760 724857; email: kekezza@smail.net; web: www.wheelspins.co.uk



Worcester Model Car Club, St. John's WR2 6Q9; Mr. Hardy



Auto Electron, Limoges 87000; M. Boudoul, 55 062763



Auto Model Club de l'ouest, Lojheret 29470; Peuziat Michel, 98071764



Crame Ronca, Mons el Baroeul; Michael Hondekyn, 33-20042755



CSRM, Lyon 69009; Pierre-Yves Montroy, 06 78880852



Lorgies Bolides, Lorgies 62840; Hourdequin Sabine



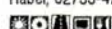
Dreykorn Raceway, Lauf 91207; Hermann Hensel, 09123-81457



MAC Zweibruecken, Hueffler 66909; Matthew Bailey, 011-49-6384-1388; email: matthew_w_bailey@hotmail.com; web: www.geocities.com/matthew_w_bailey



MC Koln, Worrigen 50769; Ralf Habel, 02733-477493



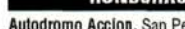
Mini Car Club Dortmund, Dortmund 4600; Roland Schwan, 0231/213609



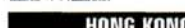
Oberhausen-Altsiedeln, Oberhausen 46099; Josef Holl, 0208-403676



Panik Raceway, Troisdorf 53844; Guido Kraft, 0224-400259



Autodromo Accion, San Pedro Sula; Colonia Rivera Hernandez; Eduardo Hondal, (504) 52-2061



H.K.R.C. Model Car Racing Club, Hong Kong; Alex Chan, (852) 659-2822



Kingsville Buggy Arena, Shatin; Pak Yeung, (852) 607-0828



Abadi Circuit, Bandung 40141; Adi Darmawan, 62-22-2021084; email: darmawaa@bdg.centrin.net.id



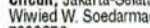
Ancol, Jakarta 14350; Andre Supriyana, 62 21 6506040; email: andre@cbn.net.id; web: www.auvis.com/ja



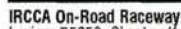
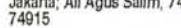
Jakarta International Twin Circuit, Dki Jaya; Fayakun Andriadi, 6221-751243g; email: fayakun@soon.com



Karinda Off-Road R/C Car Model Circuit, Jakarta-Selatan 12440; Wivied W. Soedarmadi, 62-21-7900878



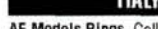
Pondok Cabe Circuit, J.L. Kunir No. 83, Jakarta; Ali Agus Salim, 7403568-9; fax: 74915



IRCCA On-Road Raceway, Rishon Lezion 75650; Shachar Ken-Dror, 972-58-470037; email: dawn@dawn.co.il; web: www.touring-car.up.co.il



Nahshoneal, Haifa 32809; Golan Levy, (972) 039386444 or (



AF Models Rings, Collegno 10093; Adriano Forato, +39.011.406.00.08; email: racing@afmodels.com; web: www.afmodels.com



Kadena R/C Car Club, APO 96367; Ron Nason, 011-81-611-733-1334; email: Ron_Nason@hotmail.com; web: home.attmil.ne.jp/b/Carmen_Nason/home.htm



Xhwakuni R/C Track FPO AP 96310-0978; David T. Eck, 81-6117-53-3662



Yokota R/C Racers, APO 96326-0034; John Baker, 90-001-81-31175-7-64; email: a4jb@yfa.attmil.ne.jp



Inferno DX 4WD Track, Ahadi 61002; Yousuf Acqatari



Wild Willy RCC, Beirut, 00961-4-403751



Acme Speedway, Georgetown, Penang 10000; Moey Chee Cheong, 604-2613175 & 6012-4; email: s_jammy@hotmail.com



Jump Square Arena, Selanhor; Thomson Chong, (603) 656-2513



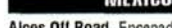
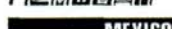
Niko Sales & Service Centre, Johor Bahru; Niko Cheng, (607) 234-3615; email: niko3@pd.jaring.my; web: www.niko.com.my



Tiluwangsa Raceway, Kuala Lumpur; R.A.C.E. Sdn Bhd, 03-2614496



TP Racing R/C Raceway, Selangor; WONG SOO WEI, +603 56388160; email: wong@tp-racing.com



Alices Off Road, Ensenada 22830; Jorge Bustamante, 667-6-1476, 61477, 8



Baja JR, Guadalajara 45000; Memo, Pancho, 33-3671-5432/33-3832; email: baja_jr@hotmail.com



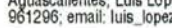
Club Dinamo Monterrey, Monterrey 64890; Daniel Ornelas Elizondo, +52 (818) 3574588; email: daniel26or@hotmail.com



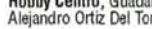
Club Kyosho Mexico, Mexico 04330; Fernando Lopez, 52 55 58462350; email: Omega@avantel.net; web: www.kyoshomexico.com



Dessstrea Racing Club, Aguascalientes; Luis Lopez, 44 98 961296; email: luis_lopez@jabil.com



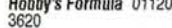
Hobby Centro, Guadalajara 45550; Alejandro Ortiz Del Toro, 36-21-46-28



Hobby Model's Raceway, Morelia 58260, 431-5-01-22



Hobby's Formula 01120, 905-502-3620



Jaguar R/C Club, Puebla 72150; Denise or Chiro, 22-31-00-91, 22-33-0



La Hietera, Queretaro 76160; Jorge Morelos Rabell, 42-12-15-25



Micromotori Club, Jalisco 44640; Francisco Sotomayor, 3335875739; email: fstmjr@hotmail.com



Nitro Racers, san jose del cabo / los cabos; Franco Meza, (114) 1424422; email: tcosta@prodigy.net.mx



Pista Casino, Cuernavaca 16507; Luis Duhart, 73-19-12-38



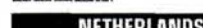
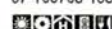
R/C Racing Hobbies de Mexico, Guadalajara 45129; Marcelo Garciae, (5233) 3587-5739; email: ventas@rcracing.com.mx; web: www.rcracing.com.mx



Radio Control Racing San Luis, San Luis Potosi 78217; Alvaro Obregon F, 011 52 444 825 328; email: fosa-do1@prodigy.net.mx



Tony's Track, Culic n; Guillermo Prieto, 67-165708-168141



ERCE Eindhoven, 5624 AA Eindhoven; Erik Veenendaal, 040-2429010; email: info@erceracing.nl; web: www.erceracing.nl



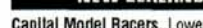
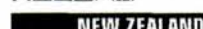
H.F.C.C. Hollandia, The Hague; G. de Jong, 031-070-3679820



M.A.C. Vlymen, Nieuwkuijk; Arjan van de Graaf, 31-416-376298



R.C.T.D. Circuit, Dordrecht 3316 GN; Jan van Kooy, 31-78-618-11-84; email: pkracing@bit.nl; web: www.pkracing.nl



Capital Model Racers, Lower Hutt; Roger Whitmarsh, 04-566-5714



Counties R/C Raceway, Pukekohe; R. Northcott, 09-23-86904 or 025 9; email: ross_jam@xtra.co.nz</

SOUTH AFRICA

B.R.C.A. Boksburg Radio Car Association: email: recycle@netactive.co.za; web: www.recycle.co.za



Banana County R/C Racing Club, Margate 4275; Dennis Steenmans, 27-0-391-20975



Francis Raceway, Welton; Wayne Roodt, 27-57-35-72849



Gordons Bay R/C Club (GBRC), Gordons Bay; Andre Hollander, 024-512865



Grand Prix Electric Car Club, Boksburg; Gary Gibson, 27-11-826-1720



Heiderberg Radio Control Car Club, Somerset West; Andre Hollander, 024-51-2865



Lowveld Radio Control Thunderdome, Nelspruit; Martin Van Der Merwe, 01311-534-6415



MERC Racing, Rustenburg 0300; Gerrie Pretorius, 014-5974569



Northern Raceway Club, Gauteng; Dan de Agrella, 2711-972-7011; email: craig@mmweb.co.za



Parow Radio Car Club, Parow; Stirling Spengler, 021-945-4957



Parow Radio Control Car Club, Parow 7530; Craig, +27 21 919-5859; email: craig@kingsley.co.za; web: www.speedmodels.za.org



Phoenix Raceway, Stilfontein; Lionel Edwards, 018-4842863



Pick 'n' Pay Model Car Club, Klerksdorp 2570; H. Grobbs, (27) 18 46245421



Pietersburg Model Racing, Pietersburg; Peter Van Vuuren, 0152-293-0700



Pretoria Model Racers, Pretoria; Deon Cerf, 27-093-630-2045; web: www.pretoriarmr.co.za



Pretoria Off Road R/C Club, Pretoria; Gert Swart, 012-377-3238



R.A.C.E. Off Road, Maraisburg; Derrick Plank, 682-2173



R.C. Superbowl, Elsburg; Karl Fawcett, 27119076145



Rustenburg Off-Roaders, Rustenburg; Jan Van Vollenhoven, 0142-24-846



SPAIN

A.D. Diablos, Zaragoza; Carlos Vicente de Vera, 34-76-605350



ADAM, Madrid; Alvaro Sarabia, 01-7471113



Club Modelismo Calilla, Burgos 09080; A.J. Pereda, 34-47-240130



Club Social Sevillana, Granada; Oscar Saenz, 958-275282



CRAEM, Madrid; Pablo Llorente, 91-3865952



Motoclub Castellon R.C., Castellon; Octavio Traver, (34) 64 229705, (34)



Outlaw-Ullima II, Madrid 28016; Juan Vacas, 915197298

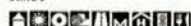


SWEDEN

Amalie Racetrack, Sollentuna 5-46632; Tage Johansson



PROCAR Speedway, Veddige 430 20; Lars Nordin, 46-0-340-38784; fax: email: info@procar.se; web: www.procar.se



Sollentuna Miniracing Club, Alingsås; Tage Johansson, 46-322-40944; email: tage.j@swipnet.se



Staffanstorps Highway 1:8 Track, Staffanstorps 245 45; B'rie Petersson, 46 0 46-256832



torvinge raceway, rappestad 59047 vikingstad; mats johansson, 013-808445; email: mats.j@swipnet.se; web: drive.to/mirac



Touring 1:10 Raceway (& Mini-Z Raceway), Ronneby 372 35; Mikael Nilsson, +046 457 160 07; email: micko12@telia.com; web: drive.to/rck



SWITZERLAND

E.M.B.C.M. Raceway, Seinen CH-8854; Markus Schmid, 41-1-8605229



ERMC Raceway, Grand-Saconnex 1218; M. Maurer, 19-41-22-798-9765



JMRCV-Terraindu Levant, Geneva 1290; fax 19 41 22 7790805



THAILAND

Hobbica Circuit, Plong Maduea, Maung 73000; Mr. Supakiet Thuwachardenpanich, 66-34-258808; email: hobbica@yahoo.com



Hot Rod Raceway, Bangkok 10310; Mr. Vichai Vongphate, (662) 8602922-5



TURKEY

B&B OTO G. ven Raceway, Istanbul, 0216-4186118, or 021



Baskent Otopark Raceway, Istanbul 81190; Kaan Ciftci, +90 (216) 3486332; email: taneri@superonline.com



VENEZUELA

R/C Mariche, Caracas DF 1070-A; Bruno Morganti, 58-02-241-3969 or 24



Santa Paula R/C Club, Caracas; Abecasis or Franco Agrusa, 02-2423954 or 02-451



WEST INDIES

Island Raceway, St. Andrew; Rodney Littau, (809) 926-7034 or 92



ZIMBABWE

Mosi-Oa-Tunya, Masloiland 46237, 46237

Attention Track owners!

Have your track listed in *RC Car Action's* Track Directory today! **It's free!**

Enter your track information on line at

www.rccaraction.com/info/trackentry.asp

or fill in this form and mail to:

Track Directory

Radio Control Car Action

100 East Ridge

Ridgefield, CT 06877-4606 USA

Track Name

Contact

Country

Address

City

State

Zip

Phone no. (required)

email

website

Check all that apply

- ☐ Indoor
- ☐ Outdoor
- ☐ Off-road
- ☐ On-road
- ☐ Oval

- ☐ Dirt
- ☐ Carpet
- ☐ Concrete
- ☐ Asphalt
- ☐ Minis & Micros

- ☐ On-site hobby shop
- ☐ AC power
- ☐ Automatic lap-counting
- ☐ Food available

NEW OPTIONS! We now have two new symbols to help our readers find your tracks!



Road course layout



Mini and micro RC cars (Kyosho Mini-Z, HPI Micro RS4, etc.).

To update your current listing, email: trackdirectory@airage.com, or fill out this form and write "update" after the track name.

KEY TO SYMBOLS



Indoor



Outdoor



Off-road



On-road



Oval



Dirt oval



Carpet



Concrete



Asphalt



Minis & Micros



On-site hobby shop



AC power



Auto lap counting



Food available

ABC Hobbies 335 abchobbies.com	Dynamite 32, 111 dynamiterc.com	HyperHobbies Inc. 331 roaddome.com	Parma/PSE 238 parmacse.com	SH Engines 75 globalhobby.com	Ultimate Hobbies 282, 283 ultimatehobbies.com
Ace Hardware Hobbies 336, 337, 338 acehardwarehobbies.com	Eagle Tree Systems 134 eagletreesystems.com	Imex Model Co. 206, 207 imexrc.com	Peak Racing Products 29, 73 peakmotors.com	Spiker Racing 325 spikerracing.com	Ultimate Nitro Engine Tuning 332 rcstore.com
Ace Hobby Distributors Inc. 112, 113 acehobby.com	ERI Associates 339	Integy Inc. 128, 129 integy.com	Performance Devices Inc. 314 performancedevices.com	SportWerks 186, 187 sportwerksrc.com	Unlimited Engineering Inc. 316 unlimitedengineering.com
Acer Racing 173 acerracing.com	Extreme Standz 314 extremestandz.com	JR Products 90, 91 jrradios.com	Power Racing Products 230, 231 powerracingrc.com	Storner Hobbies 318, 319, 320, 321 stornerhobbies.com	Vantage Racing 290 vantageracing.com
Airtronics 285 airtronics.net	First Hobby 240 firsthobby.com	KO Propo USA Inc. 350 kopropo.com	Precision Performance 311 yourparts4less.com	Sullivan Products 314 sullivanproducts.com	Varad 311 rcneon.com
American CNC Machining 305 acncm.com	Fusion Batteries 228, 229 fusionbatteries.com	Kyosho 36, 37 kyosho.com	Pro-Line USA C3, 6, 7, 8, 9, 212, 213, 354 prolineracing.com	T.A. Emerald 302 taelindustries.com	Venom Racing 279 venom-racing.com
Art's Hobby 331 arts-hobby.com	Fusion Motorsports 221 fusionmotorsports.com	Lunsford Racing 303 lunsfordracing.com	ProMax 175 promax.globalhobby.com	Tamiya America Inc. 14, 15, 50, 51, 304 tamiyausa.com	VinylGrafix 334 vgracing.com
B&B Software 333 bnbaautoscore.com	Futaba 98, 99, 100, 101, 102 futaba-rc.com	Magma Intl. Ltd. 309 magmarc.com	PSP Mfg. Co. 316, 333 pspmfg.com	Team Associated 12, 13, 22, 23, 34, 35, 40, 41, 77, 151, 201, 224, 225, 329 teamassociated.com	VS Modelsport 335 vsmodelsport.com
Boca Bearing Co. 333 bocabearings.com	General Silicones Group 89, 103, 297 gsracing.com	Megatech 312, 313 megatech.com	RAM—Radio Controlled Models Inc. 334 radiocontrolledmodels.com	Team Losi 20, 21, 124, 125, 126, 127, 214, 215 teamlosi.com	Werks Racing 114, 115 werksracing.com
Bruckner Hobbies 280 brucknerhobbies.com	Golden Horizons 179 ghhobby.com	Model Electric Systems 331	RB Innovations 302 rbinnovations.com	Team Orion 31, 33, 109, 242, 265 teamorion.com	XRAY 250, 251 rcnamxray.com
Castle Creations 255 castlecreations.com	Gorilla Maxx 333 gorillamaxx.com	Model Rectifier Corp. (MRC) 17 modelrectifier.com	R/C Car Kings 306	Tempgun.com 254	XTM Racing 30, 137, 149, 235 xtm.globalhobby.com
CEN/Genka Trading Corp. 190, 191 cenracing.com	Hitec/RCD Inc. 71 hitecrcd.com	Mugen-Seiki 216, 217 mugenracing.com	RC Car Action 258, 259, 307 rccaraction.com	Testors 311 testors.com	XXX-Main Racing Inc. 352 xxxmain.com
CheapBatteryPacks.com 334	Hobby Etc. Inc. 317 hobbyetc.com	New Era Models 284 neweramodels.com	RC Raven 148 rcraven.com	Tower Hobbies 266, 267, 268, 269, 270, 271, 272, 273, 315 towerhobbies.com	Yokomo Ltd. 52, 53 yokomousa.com
Custom Works 256 customworksrc.com	Hobby People 292, 293, 294, 295 hobbypeople.net	NitroHouse.com 223	RC Solutions 135 rc-solutions.com	Traxxas Corp. 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165 traxxas.com	This advertiser index is provided as a service to our readers. Air Age is not responsible for errors in or omissions of names or page numbers.
Deans 301 wsdeans.com	HobbyZone 340 hobbyzonesports.com	Novak Electronics 19, 25 teamnovak.com	RCStore.com 348, 349	Trinity Products Inc. C2, C4, 3, 4, 5, 10, 11, 26, 27, 28, 66, 68, 69, 87, 171, 257 teamtrinity.com	
DCX 291 dcxmagazine.com	Horizon Hobby 204, 205 horizonhobby.com	NYC Hobbies 316 nychobbies.com	RCX 2005 330 rcx.com		
DSM 79, 81, 83, 85 horizonhobby.com	HPI Racing 42, 43, 138, 139, 140, 141, 142, 143, 188, 189, 226, 227, 252, 253, 281 hpiracing.com	O.S. Engines 239 osengines.com	Robinson Racing Products 54, 55, 56, 57 robinsonracing.com		
Du-Bro Racing 289 dubro.com	Hudy Special Products 246, 247 hudy.net	OFNA Racing 44, 45, 47, 49, 60, 61, 116, 117, 177, 183, 184, 185, 202, 203, 210, 211, 236, 237, 241, 244, 327 ofna.com	Schumacher USA 97 racing-cars.com		
DuraTrax 39, 58, 59, 123, 169, 181, 299, 323 duratrax.com		Panther Products 333 panther-rc.com			

RADIO CONTROL CAR ACTION (USPS 001-087; ISSN 0886-1609) is published monthly by Air Age, Inc., 100 East Ridge, Ridgefield, CT 06877-4606 USA. Copyright 2004, all rights reserved. Periodicals postage permit paid at Ridgefield, CT and additional offices. Canadian Post Publications Mail Agreement No. 40008153.

SUBSCRIPTIONS AND BACK ISSUES: U.S., call (800) 877-5169; Canada and elsewhere, call (386) 246-3323; fax (386) 447-2321, or go to our website www.rccaraction.com. U.S., \$27.95 (1 yr); Canada \$39.95 including GST (1 yr); elsewhere \$70.95 (1 yr). All international orders must be prepaid in U.S. Funds; Visa, MC, Discover, and AmEx accepted.

EDITORIAL: Send correspondence to Editors, *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Email: rcca@airage.com. We welcome all editorial submissions, but assume no responsibility for loss/damage of unsolicited material. To authors, photographers and people featured in this magazine: all materials published in *Radio Control Car Action* become the exclusive property of Air Age Publishing, Inc. unless prior arrangement is made in writing with the Publisher.

ADVERTISING: Send advertising materials to Advertising Dept., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA; phone (203) 431-9000; fax (203) 431-3000; email sales@airage.com

CHANGE OF ADDRESS: To make sure you don't miss any issues, send your new address to *Radio Control Car Action*, P.O. Box 420235, Palm Coast, FL 32142-0235 USA, six weeks before you move. Please include address label from a recent issue, or print the information exactly as shown on the label. For faster service, go to our website www.rccaraction.com and click on the customer service link.

POSTMASTER: Send Form 3579 to *Radio Control Car Action*, P.O. Box 420235, Palm Coast, FL 32142-0235 USA.

customer service

For fast service, go to: www.rccaraction.com and select "Customer Service"

All of the following services are available online!

- Subscribe
- Change your address
- Report missing or damaged issues
- Make payments
- Check your account status
- Renew your subscription

Address changes

Please allow 4-6 weeks for address changes to be processed. To change your address by mail, send a copy of your current label and your new address information to:

RC Car Action
P.O. Box 420235
Palm Coast, FL 32142-0235 USA

You can also contact us at rccaraction@palmcoastd.com, (386) 246-3323, fax (386) 447-2321. For faster service, go online.

How to read your label:

#BXNBNHG *****AUTO** 3-DIGIT 068
#12345ABC123AB12C#70411 AUG 05

|||||

Your account number is 12345ABC123AB12C.

Your expiration date issue is August 2005.

Our cancellation policy

All cancellations must be requested in writing. You may send your request via mail, email, or fax.

Our renewal policy

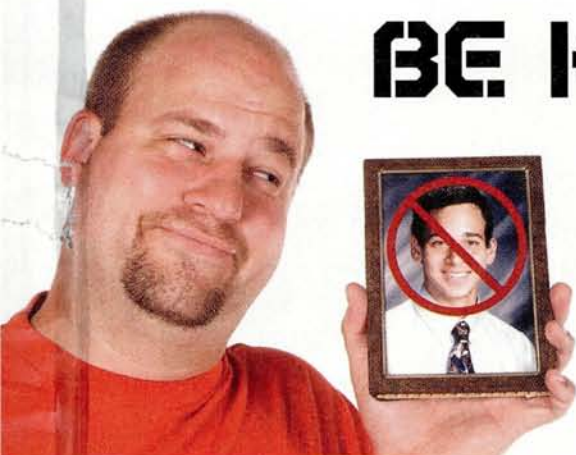
We will send you a renewal notice 4 months prior to your subscription's expiration date. For faster service, renew online at

www.rccaraction.com

RADIO CONTROL
Car Action

CONTACT THE BACKLOT Email backlot@airage.com, or write to Backlot, c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

BE KEVIN'S FRIEND!



First, the bad news: Kevin had to let go of his best friend (and sometimes RC Car Action contributor) Rob Allgeyer. It was a good 15-year run for the two pals, but it's over. "He says he'll come over, but he comes over like two hours late! And he eats all my food!" says Kev. Now, the good news: Kevin is taking applications for a new best friend! Now, we know what you're thinking: of course I want to be best chums with a swell guy like Kev. But it's not all gravy! (Seriously, Kev doesn't usually eat gravy.) In the interest of full disclosure, here's what you can expect when you're Kev's best buddy. And your official application!

FREE STUFF!

As Kev's pal, you're first in line for all his extra gear!



Unfortunately, it's missing some pieces. And he lost the manual. And Kev's keeping the ball bearings and electronics. But the filthy plastic parts are yours!

MO' MONEY!

Kev will hook you up with extra cash when he needs help getting stuff built for a photo shoot.



But as soon as you get paid, Kev asks to borrow the money from you, usually with a line like, "Dude, you wouldn't even have that extra \$50 if it weren't for me!" Then, Kev pays you back by buying you lunch sporadically throughout the year.

MEANINGFUL CONVERSATION

If you're gonna be Kev's best buddy, you gotta be there for him. 24-7. Expect late night calls to discuss the following topics, among others:

- > Why don't girls like me? Specifically, why doesn't your sister like me?
- > Is (insert unusual symptom) normal?
- > Who would win in a fight: AquaMan or Carrot Top?
- > Hey, are you watching Cinemax right now?



*The sister thing was more of a Rob item. You may not have a sister. Or your sister may be ugly. Ah, what the heck, give her Kev's number. He's no prize, either.

AWRIGHT! WORKIN' ON THE HIZZ-OUSE!

The only thing Kev likes more than doing major work on his house is watching you do major work on his house. But there's a pizza in it for you!



YES!

I want to be Kev's new best friend! If I'm selected by Kevin, I will get an exclusive "I'm Kevin's Best Friend and All I got Was This Stupid T-shirt" T-shirt, a signed and framed photo of Kev for my nightstand and something cool from Kev's secret stash (probably some sort of Clod Buster).

Name: _____
Daytime phone number: _____
Email address: _____
Address: _____

I should be Kevin's new best friend because: (Enclose essay of 100 words or less.)

☐ **Ladies!** Would you like to date Kevin? Check here!

Email to: kevinh@airage.com
Snail mail: RC Car Action, attn: Kevin's Friend, 100 East Ridge, Ridgefield, CT 06877

